

## APPENDIX K

## OEPA STACK TEST REVIEW SUMMARY FORM

APPLICATION NUMBER 1483000170 J002FACILITY NAME Marathon Oil Company

SOURCE DESCRIPTION (OR SCC CODE) \_\_\_\_\_

CONTROL EQUIPMENT John Zink Carbon BedDATE (S) OF TEST June 4, 1992FINAL TEST REPORT RECEIVED ON June 22, 1992POLLUTANT (S) TESTED HydrocarbonsTEST METHOD U.S. EPA Methods 2A, 25B, 21 & CF 40 subsection 60.503 (d)TEST FIRM John Jordan Services Company, Inc.

EMISSION RATES\*:

ACTUAL (lb (s)/hr) 1.0 mg VOC/l gas ALLOWABLE\*\* 30.2 mg/l

OPERATING RATES\*:

DURING TEST\*\* 1,061,400 gals/day MAXIMUM\*\* 1,800,000 gals/day

EMISSION FACTOR\*\*\* \_\_\_\_\_

COMMENTS: \_\_\_\_\_

I HEREBY VERIFY THAT THE INFORMATION CONTAINED WITHIN THE STACK TEST REPORT HAS BEEN REVIEWED AND IT HAS BEEN DETERMINED THAT THE TEST PROCEDURES, ANALYSES AND CALCULATIONS ARE;

- AN ACCEPTABLE DEMONSTRATION OF CONFORMANCE WITH THE APPROVED TESTING METHODOLOGY.  
 AN UNACCEPTABLE DEMONSTRATION OF CONFORMANCE WITH THE APPROVED TESTING METHODOLOGY.

DATE OF REVIEW July 2, 1992 REVIEWED BY Denise L. Bien, AQS

\* BASED ON - RUN AVERAGE

\*\* SPECIFY APPLICABLE UNITS

\*\*\* SPECIFY IN UNITS OF MASS/INPUT

OBSERVER'S REPORT

COMPLIANCE TEST FOR  
VOC Emissions

Conducted on: Marathon Oil Company

Source: J002 Loading Rack

Premise Number: 1483000170

Test Firm: John Jordan Service Company, Inc.

Prepared by: Denise L. Bien, AQS

Date Prepared: July 2, 1992

SOUTHWESTERN OHIO AIR POLLUTION CONTROL AGENCY  
(S.W.O.A.P.C.A.)

Marathon Terminal  
1483000170 J002

Testing for VOC emissions took place on June 4, 1992, on the gasoline loading rack at the Marathon Terminal in Lebanon, Ohio. The terminal capacity was upgraded to a 1,800,000 gals./day throughput. The control unit is a John Zink Carbon Bed Unit with vapor hoses to collect tank truck vapors. Ohio Administrative Code (OAC) Rule 3745-21-09 for VOCs and 3745-31-05 for Best Available Technology (BAT) limits emissions to 30.2 mg./l. of loaded gasoline. The New Source Performance Standard 40 CFR Subpart XX applied also.

For the six hour test period, an average of 1.00 mg. of VOC/l. of loaded gasoline was measured. 265,350 gals. of gasoline were loaded. This is an improvement over the 177,500 accountable gallons loaded during the test in 1991, but not near the maximum of 450,000 gals. for the six hours that the loading rack is rated.

Testing was performed using U.S. EPA Methods 2A for turbine meter air flow, 25B NDIR Analyzer for hydrocarbons (HC), Method 21 for leak checks, and 40 CFR 60 Subsection 60.503(d) for transport loading maximum backpressure. The inlet HC and outlet HC to the carbon absorber was monitored. An on-line data logger records temperature, pressure, volumetric flow and concentration at 5 minute intervals. It calculates and prints out standard volume and milligrams of HC for that period. The analyzers are calibrated with three span tanks before, during, and after the test.

The total volume of air displaced during testing was 1,612 cubic meters. The total amount of products loaded was 350,050 gallons, which converts to approximately 1,767 cubic meters. The total calculated milligrams of HC was 1,006,846. Dividing this value by liters of loaded gasoline gives the average emission rate for the test period.

The vapor recovery unit operating maximum vacuum was -27" Hg absorber. The vapor Recovery Unit switches approximately every 15 minutes. There were no exceedances of the 18" H<sub>2</sub>O backpressure limit over the course of the test, the highest observed reading was 14" H<sub>2</sub>O.

All tank trucks were leak checked by SWOAPCA. A total of 42 trucks were loaded over the six hour period. No trucks were found to have leaks.

In conclusion, data of sufficient precision and accuracy to determine compliance was obtained. Considering the emission rate is under 5% of the allowable limit, testing every 3 years is recommended.

RECEIVED  
BELL & HOWELL  
JUN 2 2 1992

VOLATILE ORGANIC COMPOUND EMISSION TEST REPORT

OF THE

MARATHON OIL COMPANY

LEBANON, OHIO TRANSPORT LOADING TERMINAL

ON THE

JOHN ZINK CARBON VAPOR RECOVERY UNIT

ON

JUNE 4, 1992

REPORTED BY: JOHN F. JORDAN SERVICE CO., INC.  
2820 S. ENGLISH STATION ROAD  
LOUISVILLE, KENTUCKY 40299

TEST PERSONNEL: JOHN HALL  
RICHARD HALL

APPROVAL:

*Ed Menzenski*  
ED MENZENSKI  
ENGINEERING MANAGER  
TECHNICAL SERVICE GROUP

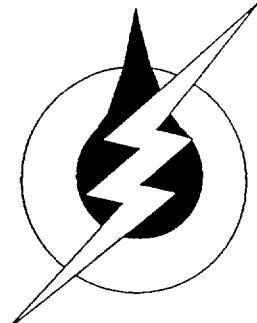


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EXECUTIVE SUMMARY

The MARATHON OIL COMPANY terminal in LEBANON, OHIO is a bulk transport loading facility for GASOLINE and FUEL OIL products.

The products are bottom loaded into transport tankers and the displaced hydrocarbon vapors are balanced to a JOHN ZINK CARBON ADSORPTION/ABSORPTION VAPOR RECOVERY UNIT (VRU).

This facility was source tested for air emissions on JUNE 4, 1992. The purpose of this test was to confirm proper operation of the VRU and verify compliance with applicable VOC (Volatile Organic Compound) air emission requirements.

The Gasoline Terminal Air Emission Source Test was conducted in accordance with procedures established, and the test methods referenced, in the Code Of Federal Regulations; CFR 40, Part 60, Subpart XX. Specific procedures used include:

<u>EPA Test Method</u>	<u>Measurement</u>
Method 2A	Exhaust Vapor Volume
Method 25B	Inlet and Outlet VOC Concentrations
Method 21	Potential Leak Sources
40 CFR 60 Subsection 60.503 (d)	Transport Loading Maximum Backpressure

The results of this air emission test demonstrate that this source is in compliance with all applicable Federal and Local requirements. A summary of the data is presented below.

<u>Test Parameter</u>	<u>Measured Value</u>
Allowable Emissions	35 mg/liter
Measured Emissions	1.00 mg/liter(accountable volume)

TERMINAL OPERATION AND DESCRIPTION

Light petroleum products are bottom loaded at FOUR loading racks at the MORATHON OIL COMPANY, LEBANON, OHIO terminal.

Each of the four bays has super, regular and mid-grade gasoline as well #2 and #1 fuel oil.

Each rack is equipped with vapor recovery hoses positioned at the transport loading positions for hook up to the Vapor Control System. The vapor hoses and associated piping transports the vapors to the VRU. The system also employs a liquid knock-out tank and pressure relief valve upstream from the VRU.

A general overview of the loading rack layout is shown in Figure 1.

JOHN ZINK VAPOR RECOVERY UNIT

The MARATHON OIL COMPANY terminal is equipped with a John Zink Adsorption/Absorption Gasoline Vapor Recovery Unit. Hydrocarbon vapors enter the John Zink VRU into one of two Carbon Adsorbers. The hydrocarbon-air mixture flows up through the adsorber where the bulk of the hydrocarbons are adsorbed. The air continues through the Carbon Adsorber and is vented to the atmosphere. The saturated carbon is then desorbed by employing vacuum regeneration at 27.5" Hg Vacuum, while the second Carbon Adsorber is receiving the hydrocarbon-air mixture generated in transport loading activity. The purpose of regeneration is to restore the carbon to a level where it will effectively adsorb hydrocarbons again. The two carbon adsorbers alternate between adsorption and regeneration at 15 minute intervals.

When a Carbon Adsorber is in the regeneration mode, a liquid ring vacuum pump pulls the hydrocarbon from the carbon. The rich hydrocarbon vapors from the Carbon Adsorber are mixed with the vacuum pump seal fluid and are discharged to an Absorber/Separator.

The liquid hydrocarbons are condensed and separated from the seal fluid in the separator compartment and are discharged back to a holding tank. Any remaining hydrocarbons pass up through the packed Absorber tower and are contacted by a fresh stream of gasoline which absorbs most of the remaining hydrocarbons. The small amount of hydrocarbon that is left then leaves the top of the absorber and is directed back to the Carbon Adsorber where the whole process is repeated.

The John Zink Unit is illustrated schematically in Figure 2.

#### MEASUREMENT AND DATA ANALYSIS

The non dispersive infrared analyzer, turbine flow meter, exhaust vapor thermistor and exhaust pressure transducer are connected to the VRU exhaust stack in order to acquire their respective data. A quad check valve assembly is employed to provide for proper VRU regeneration air flow and allow one turbine flow meter to satisfy both carbon vessel measurement requirements.

The barometric pressure transducer and ambient thermistor are located in close proximity to the VRU to acquire ambient atmospheric conditions for use in subsequent standardization equations. A test schematic depicting general test equipment configuration is included as Figure 3.

Each transducer data channel is scaled and connected to the computer input board. Using an operations code program each input channel is read 10 times in a 5 second interval and concentration, temperature and pressure values are averaged and stored in an array for subsequent use. Volume and mass emission data are calculated for each 5 second interval and also stored in an array.

After sixty 5 second intervals (5 minutes) the array is polled and average values are determined for concentration, pressure and temperature. Please note these 5 minute values are only used for display purposes and are not used for subsequent calculations. All calculations are carried out using 5 second data which is not printed in order to conserve paper and reduce final test report volume. Additionally, volume and mass emission data are totaled to provide 5 minute emission data. This 5 minute data is again stored until the 6 hour test period is complete.

Upon completion of the test the 5 minute interval data is polled to determine test averages for inlet and outlet HC concentration, pressure and temperature data for all test intervals during which VRU exhaust flow was greater than zero and again volume and milligram emission data is summed for all 5 minute periods to arrive at a final test period total. As before, concentration, pressure and temperature data is used for display and documentation purposes only.

This data acquisition methodology essentially represents a series of very short (5 sec) intervals during which VRU operation is measured, averaged and standardized. This effectively removes all judgemental decisions from data reduction processes and provides a technically unbiased analysis of VRU operation.

Additionally, pretest and post test vapor analyzer calibrations are conducted, along with an hourly analyzer calibration drift check verification. Following the conclusion of the six hour test the loading rack volumes are calculated and final mass emission values are determined.

Copies of the transport loading rack sheets, hydrocarbon analyzer strip charts and computer print outs are attached as Appendices to this report.

TEST EQUIPMENT

Test Trailer No. 1

Quantity	Item
2	Thermistor Temperature Probes
1	IBM PC Compatible Computer with 16 Channel, 12 Bit A/D Input Card
1	Gastech Model #1214 Combustible Gas Indicator
1	Setra Model #261 Variable Differential Pressure Transducer
1	Setraceram Model #361 Digital Barometer
1	American Meter Co. 8" Turbine Flow Meter
1	Kent Industries Model #P100M Dual Channel Recorder
1	Horiba PIR-2000 <u>NonDispersive InfraRed</u> Gas Analyzer
1	Horiba VIA-500 <u>NonDispersive InfraRed</u> Gas Analyzer
1	Horiba ENDA-1000 CO and CO <sub>2</sub> Stack Gas Analyzer

All equipment specifications are shown in Appendix B along with available calibration and accuracy information.

EXAMPLE CALCULATIONS

A. TERMINOLOGY:

$T_a$  = Ambient Temperature ( $^{\circ}$  Celsius).

$P_b$  = Barometric Pressure (mm Hg).

$L_t$  = Total volume of liquid dispensed from all controlled racks during the test period (Liters).

$V_e$  = Volume of air-hydrocarbon mixture exhausted from the processing unit (Cubic meters).

$V_{es}$  = Normalized volume of air-hydrocarbon mixture exhausted (Cubic meters at  $20^{\circ}$  Celsius, 760 mm Hg).

$c_e$  = Volume fraction of hydrocarbons in exhausted mixture (Vol% as  $C_3H_8/100$ , corrected for methane content, if required).

$T_e$  = Temperature at process unit exhaust ( $^{\circ}$  Celsius).

$P_e$  = Pressure at processing unit exhaust (mm Hg. absolute).

$M_e$  = Mass of VOC emitted (mg).

$(M/L)_e$  = Mass of hydrocarbons exhausted from the processing unit per volume of liquid loaded (mg/liter).

$(M/T)_e$  = Mass of hydrocarbons exhausted from the processing unit per unit time (lb/hour).

CONSTANTS:

$0.3858 = (273.2^{\circ} C + 20^{\circ} C)/(760 \text{ mm Hg})$  Normalization Factor

$1.83 \times 10^6 \text{ mg/M}^3$  = Standard Density of  $C_3H_8$ .

454,000 = Conversion Factor mg/lb.

3.785 = Conversion Factor liter/gal.

264.2 = Conversion Factor gal/meter<sup>3</sup>

B. CALCULATE THE FOLLOWING RESULTS FOR EACH PERIOD OF THE VAPOR CONTROL SYSTEM OPERATION:

- (1.) Volume of air-hydrocarbon mixture exhausted from the vapor control system:

$$V_e = (V_{ef} - V_{ei}) \text{ (Meters}^3\text{)}$$

(where subscript  $f$  refers to final and subscript  $i$  refers to initial)

$V_e$  = Totalized volume from flow rate and time records.

- (2.) Normalized volume of exhausted mixture:

$$V_{es} = \frac{(0.3858^\circ \text{ Kelvin/mm Hg}) \times V_e \times P_e \text{ (Meters}^3\text{)}}{(T_e + 273.2)}$$

(The value of  $V_{es}$  displayed in the 5 minute interval printout is the sum of all 5 second data, not one 5 minute calculation. This holds true throughout the data reduction calculations.)

- (3.) Mass of hydrocarbons exhausted from the vapor control system:

$$M_e = \frac{(1.83 \times 10^6 \text{ mg C}_3\text{H}_8) \times V_{es} \times C_e \text{ (mg.)}}{\text{Meter}^3}$$

(The value of  $M_e$  displayed in the 5 minute interval printout is the sum of all 5 second data, not one 5 minute calculation. This holds true throughout the data reduction calculations.)

C. CALCULATE THE AVERAGE MASS OF HYDROCARBONS EMITTED PER VOLUME OF GASOLINE LOADED:

$$(M/L)_e = M_e / L_t \text{ (mg/liter)}$$

D. CALCULATE THE AVERAGE MASS OF HYDROCARBONS EMITTED PER UNIT TIME:

$$(M/T)_e = (M/L)_e \times \frac{1 \text{ lb}}{454,000 \text{ mg}} \times \frac{3.785 \text{ liter}}{1 \text{ gal}} \times \frac{\text{Acct Gal}}{\text{Test Time}} \text{ (lb/hr)}$$

E. CALCULATION FOR EFFICIENCY (IF USED):

$$\text{Unit efficiency} = [1 - (\text{outlet mg/inlet mg})] \times 100\%$$

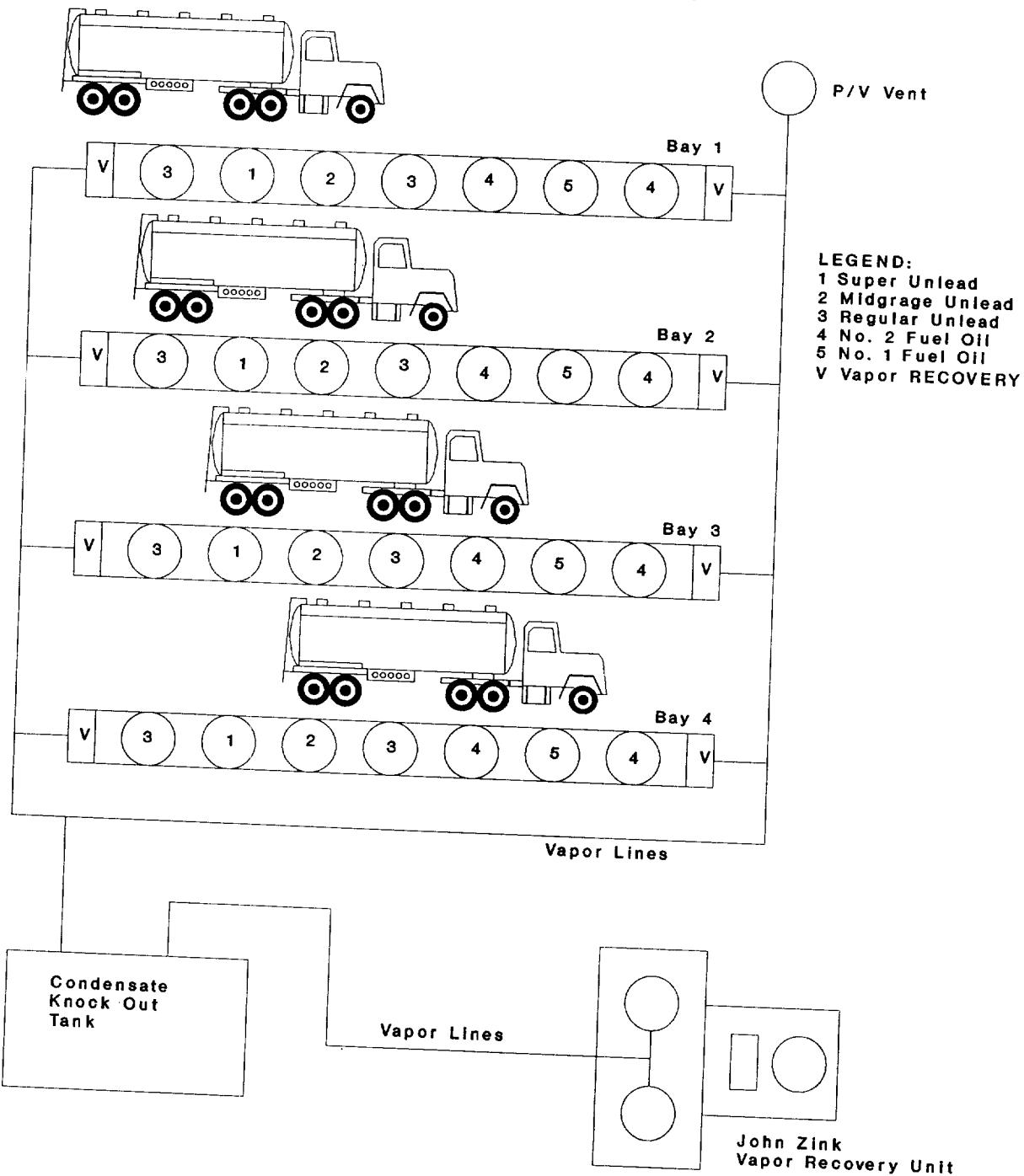
Where inlet milligrams is derived using inlet concentration and volume of liquid loaded onto transports, assuming a vapor growth ratio of 1:1 and no gross leaks.

DATA SUMMARY

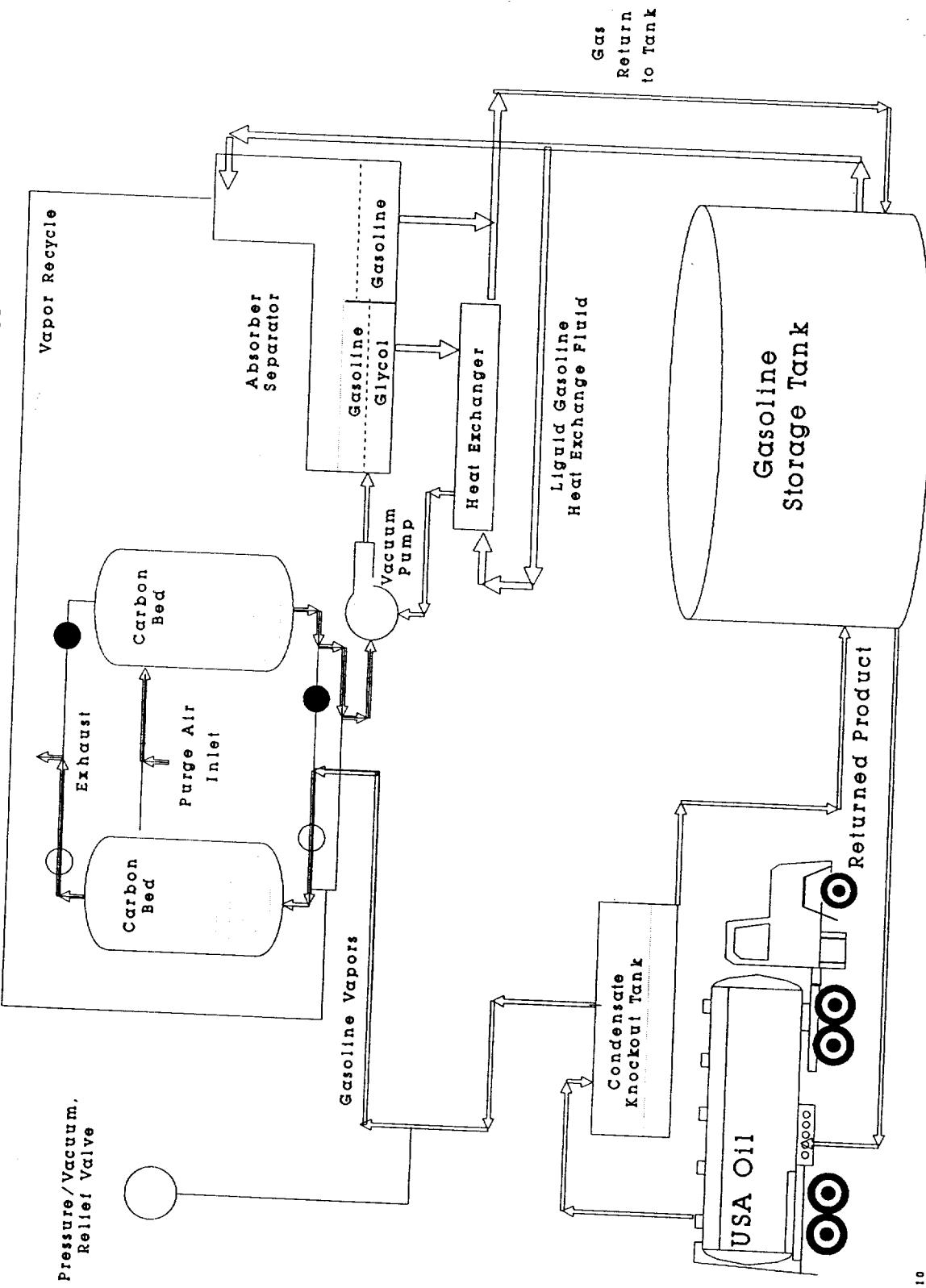
TERMINAL DESCRIPTION	MARATHON Oil Co LEBANON, OHIO
VAPOR CONTROL UNIT TYPE	John Zink VRU
TEST DATE	6-4-92
TEST PERIOD	07:01-13:01
AVERAGE OUTLET CONCENTRATION (Propane)	0.03 % by Vol
AVERAGE INLET CONCENTRATION (Propane)	19.35 % by Vol
TOTAL PETROLEUM LOADED	350,150 gallons
ACCOUNTABLE PETROLEUM LOADED	265,450 gallons
AVERAGE HYDROCARBON EMISSIONS (Calculated with Total Loaded Product)	0.76 mg/liter 0.37 lb/hr
AVERAGE HYDROCARBON EMISSIONS (Calculated with Accountable Product Loaded)	1.00 mg/liter 0.37 lb/hr
NUMBER OF TRUCKS LOADED	42
NUMBER OF LEAKING TRUCKS	0
MAXIMUM PRESSURE AT TRUCK VAPOR HOSE	14" H <sub>2</sub> O
STRIP CHART SPEED	120 mm/hour
UNIT EFFICIENCY	99.72 %

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**Figure 1**  
**Marathon, Lebanon Ohio**

**NOTE: Drawing not to scale  
For general information only**



Page-10- Figure 2  
Activated Carbon Vapor Recovery Unit Schematic

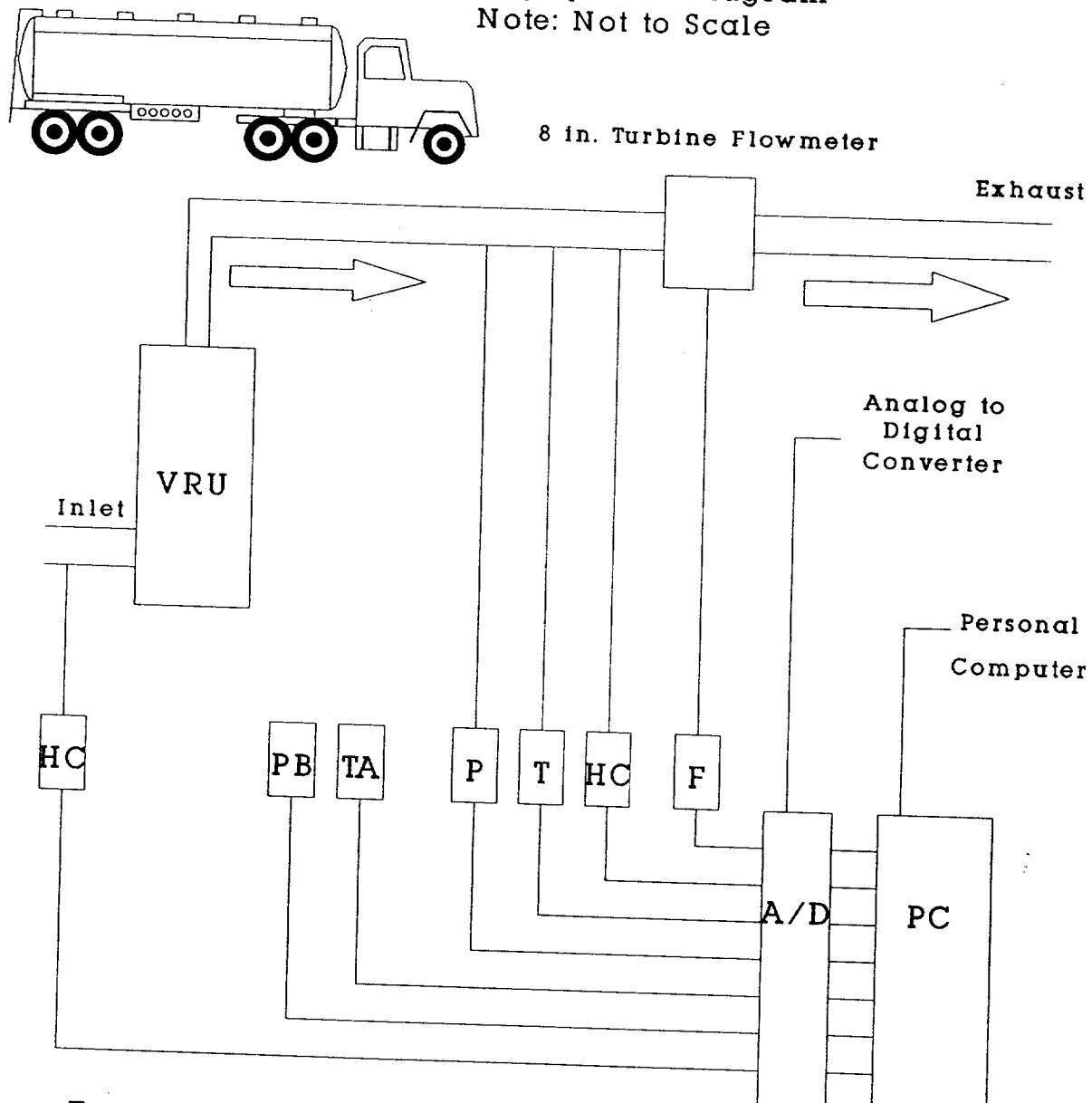


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Figure 3  
Vapor Recovery Unit Test Schematic

Test Equipment Diagram

Note: Not to Scale



F --- Exhaust Flow

HC --- Hydrocarbon Concentration      PB --- Barometric Pressure

P --- Pressure

TA --- Ambient Temperature

T --- Temperature

## APPENDIX A

P.1

TERMINAL LOCATION: MARATHON LINDEN DATE: 6-4-92

SEQ. NO. 1

TANKER NAME: MARATHON

LOAD START TIME: 7:15

BAY NO. 2

TRAILER NO. 31147

LOAD STOP TIME: 7:25

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS			9150	

MAXIMUM BACK PRESSURE 6 TOTAL GALS. ACCOUNTABLE 9150 TOTAL LOAD GALS. 9150

SEQ. NO. 2

TANKER NAME: MARATHON

LOAD START TIME: 7:30

BAY NO. 2

TRAILER NO. 30081

LOAD STOP TIME: 7:40

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
NO. 2	NO. 2			7800

MAXIMUM BACK PRESSURE 7 TOTAL GALS. ACCOUNTABLE 0 TOTAL LOAD GALS. 7800

SEQ. NO. 3

TANKER NAME: MARATHON

LOAD START TIME: 7:36

BAY NO. 1

TRAILER NO. 6368

LOAD STOP TIME: 7:48

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
NO. 2	GAS			7700

MAXIMUM BACK PRESSURE 10 TOTAL GALS. ACCOUNTABLE 0 TOTAL LOAD GALS. 0 7700

SEQ. NO. 4

TANKER NAME: COLUMBIA OIL CO.

LOAD START TIME: 7:38

BAY NO. 3

TRAILER NO. T5286C

LOAD STOP TIME: 7:46

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
NO. 2	NO. 2			8000

MAXIMUM BACK PRESSURE 10 TOTAL GALS. ACCOUNTABLE 0 TOTAL LOAD GALS. 8000

SEQ. NO. 5

TANKER NAME: NEW PARIS OIL CO.

LOAD START TIME: 7:43

BAY NO. 4

TRAILER NO. T140 EK

LOAD STOP TIME: 7:52

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	NO. 2		8400	0

MAXIMUM BACK PRESSURE 9 TOTAL GALS. ACCOUNTABLE 8400 TOTAL LOAD GALS. 8400

Total of load 1	9150	Accountable load 1	9150
Total of load 2	7800	Accountable load 2	0
Total of load 3	7700	Accountable load 3	0
Total of load 4	8000	Accountable load 4	0
Total of load 5	8400	Accountable load 5	8400

Total this page 41,050

Accountable this pg. 17,550

P.2

TERMINAL LOCATION: \_\_\_\_\_ DATE: \_\_\_\_\_

SEQ. NO. 6

TANKER NAME: NEW PARIS OIL CO.

LOAD START TIME: 7:45

BAY NO. 2

TRAILER NO. T142EK

LOAD STOP TIME: 7:53

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
NO. 2	GAS			7500

MAXIMUM BACK PRESSURE 10

TOTAL GALS. ACCOUNTABLE

TOTAL LOAD GALS.

SEQ. NO. 7

TANKER NAME: M. URIGHT PETRO

LOAD START TIME: 7:58

BAY NO. 3

TRAILER NO. 646

LOAD STOP TIME: 8:07

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	NO.2		6000 2500	

MAXIMUM BACK PRESSURE 10

TOTAL GALS. ACCOUNTABLE 8500

TOTAL LOAD GALS. 8500

SEQ. NO. 8

TANKER NAME: MARATHON

LOAD START TIME: 8:20

BAY NO. 2

TRAILER NO. 6380

LOAD STOP TIME: 8:32

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	OIL NO.2		9000 9000	

MAXIMUM BACK PRESSURE 11

TOTAL GALS. ACCOUNTABLE

TOTAL LOAD GALS.

SEQ. NO. 9

TANKER NAME: MARATHON

LOAD START TIME: 8:20

BAY NO. 4

TRAILER NO. 6370

LOAD STOP TIME: 8:26

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	GAS		6350 2700 9050	

MAXIMUM BACK PRESSURE 11

TOTAL GALS. ACCOUNTABLE 9050

TOTAL LOAD GALS. 9050

SEQ. NO. 10

TANKER NAME: NEW PARIS OIL

LOAD START TIME: 8:23

BAY NO. 3

TRAILER NO. T137EK

LOAD STOP TIME: 8:30

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	NO.2		8400	0

MAXIMUM BACK PRESSURE 11

TOTAL GALS. ACCOUNTABLE 8400

TOTAL LOAD GALS. 8400

Total of load 1 7500

Accountable load 1 0

Total of load 2 8500

Accountable load 2 8500

Total of load 3 9000

Accountable load 3 9000

Total of load 4 9050

Accountable load 4 9050

Total of load 5 8400

Accountable load 5 8400

Total this page 42,450

Accountable this pg. 34,950

P.3

TERMINAL LOCATION: \_\_\_\_\_ DATE: \_\_\_\_\_

SEQ. NO. <u>11</u>	TANKER NAME: <u>MARATHON</u>	LOAD START TIME: <u>8:40</u>		
BAY NO. <u>4</u>	TRAILER NO. <u>6362</u>	LOAD STOP TIME: <u>8:50</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.

GAS	GAS		1950 7200	0
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MAXIMUM BACK PRESSURE 10 TOTAL GALS. ACCOUNTABLE 9150 TOTAL LOAD GALS. 9150

SEQ. NO. <u>12</u>	TANKER NAME: <u>HARTLEY OIL CO.</u>	LOAD START TIME: <u>8:43</u>		
BAY NO. <u>1</u>	TRAILER NO. <u>T643DD</u>	LOAD STOP TIME: <u>8:53</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.

NO. 2				7500
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MAXIMUM BACK PRESSURE 10 TOTAL GALS. ACCOUNTABLE 0 TOTAL LOAD GALS. 7500

SEQ. NO. <u>13</u>	TANKER NAME: <u>HARTLEY OIL CO</u>	LOAD START TIME: <u>8:43</u>		
BAY NO. <u>2</u>	TRAILER NO. <u>T640DD</u>	LOAD STOP TIME: <u>8:53</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.

NO. 2				7500
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MAXIMUM BACK PRESSURE 10 TOTAL GALS. ACCOUNTABLE 0 TOTAL LOAD GALS. 7500

SEQ. NO. <u>14</u>	TANKER NAME: <u>MARATHON</u>	LOAD START TIME: <u>8:58</u>		
BAY NO. <u>2</u>	TRAILER NO. <u>6368</u>	LOAD STOP TIME: <u>9:03</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.

GAS	NO. 2		9050	
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MAXIMUM BACK PRESSURE 10 TOTAL GALS. ACCOUNTABLE 9050 TOTAL LOAD GALS. 9050

SEQ. NO. <u>15</u>	TANKER NAME: <u>VEL PARIS</u>	LOAD START TIME: <u>9:15</u>		
BAY NO. <u>3</u>	TRAILER NO. <u>T618GF</u>	LOAD STOP TIME: <u>9:25</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.

NO. 2	NO. 2			7500
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MAXIMUM BACK PRESSURE 10 TOTAL GALS. ACCOUNTABLE 0 TOTAL LOAD GALS. 7500

Total of load 1	<u>9150</u>	Accountable load 1	<u>9150</u>
Total of load 2	<u>7500</u>	Accountable load 2	<u>0</u>
Total of load 3	<u>7500</u>	Accountable load 3	<u>0</u>
Total of load 4	<u>9050</u>	Accountable load 4	<u>9050</u>
Total of load 5	<u>7500</u>	Accountable load 5	<u>0</u>

Total this page	<u>40,700</u>	Accountable this pg.	<u>18,200</u>
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TERMINAL LOCATION: \_\_\_\_\_ DATE: \_\_\_\_\_

SEQ. NO. <u>16</u>	TANKER NAME: <u>SILVER OIL</u>			LOAD START TIME: <u>9:21</u>
BAY NO. <u>2</u>	TRAILER NO. <u>222</u>			LOAD STOP TIME: <u>9:32</u>
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	GAS		7750	
MAXIMUM BACK PRESSURE <u>11</u>			TOTAL GALS. ACCOUNTABLE	TOTAL LOAD GALS.
SEQ. NO. <u>17</u>	TANKER NAME: <u>MARATHON</u>			LOAD START TIME: <u>9:32</u>
BAY NO. <u>3</u>	TRAILER NO. <u>30084</u>			LOAD STOP TIME: <u>9:38</u>
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS			9150	0
MAXIMUM BACK PRESSURE <u>16</u>			TOTAL GALS. ACCOUNTABLE	TOTAL LOAD GALS.
SEQ. NO. <u>18</u>	TANKER NAME: <u>STOUDER</u>			LOAD START TIME: <u>9:</u>
BAY NO. <u>4</u>	TRAILER NO. <u>T839DB3</u>			LOAD STOP TIME: <u>9:43</u>
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS			2400	5700
MAXIMUM BACK PRESSURE <u>10</u>			TOTAL GALS. ACCOUNTABLE <u>2400</u>	TOTAL LOAD GALS. <u>8100</u>
SEQ. NO. <u>19</u>	TANKER NAME: <u>VOGEL OIL</u>			LOAD START TIME: <u>9:45</u>
BAY NO. <u>2</u>	TRAILER NO. <u>T545EF</u>			LOAD STOP TIME: <u>9:52</u>
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
NO.2			1700	6000
GAS	GAS			
MAXIMUM BACK PRESSURE <u>10</u>			TOTAL GALS. ACCOUNTABLE <u>1700</u>	TOTAL LOAD GALS. <u>7700</u>
SEQ. NO. <u>20</u>	TANKER NAME: <u>MARATHON</u>			LOAD START TIME: <u>10:11</u>
BAY NO. <u>1</u>	TRAILER NO. <u>30085</u>			LOAD STOP TIME: <u>10:21</u>
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	GAS		9150	
MAXIMUM BACK PRESSURE <u>13</u>			TOTAL GALS. ACCOUNTABLE <u>9150</u>	TOTAL LOAD GALS. <u>9150</u>
Total of load 1	<u>7750</u>		Accountable load 1	<u>7750</u>
Total of load 2	<u>9150</u>		Accountable load 2	<u>9150</u>
Total of load 3	<u>8100</u>		Accountable load 3	<u>2400</u>
Total of load 4	<u>7700</u>		Accountable load 4	<u>1700</u>
Total of load 5	<u>9150</u>		Accountable load 5	<u>9150</u>
Total this page	<u>41,850</u>		Accountable this pg.	<u>30,150</u>

P.5

TERMINAL LOCATION: \_\_\_\_\_ DATE: \_\_\_\_\_

SEQ. NO. <u>21</u>	TANKER NAME: <u>MARATHON</u>	LOAD START TIME: <u>10:11</u>		
BAY NO. <u>2</u>	TRAILER NO. <u>6370</u>	LOAD STOP TIME: <u>10:20</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
	GAS		1100 7950	

MAXIMUM BACK PRESSURE 13 TOTAL GALS. ACCOUNTABLE 9150 TOTAL LOAD GALS. 9150

SEQ. NO. <u>22</u>	TANKER NAME: <u>MARATHON</u>	LOAD START TIME: <u>10:10</u>		
BAY NO. <u>3</u>	TRAILER NO. <u>30081</u>	LOAD STOP TIME: <u>10:20</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
	No. 2		9150	

MAXIMUM BACK PRESSURE 14 TOTAL GALS. ACCOUNTABLE 9150 TOTAL LOAD GALS. 9150

SEQ. NO. <u>23</u>	TANKER NAME: <u>COLUMBIA OIL CO</u>	LOAD START TIME: <u>10:11</u>		
BAY NO. <u>4</u>	TRAILER NO. <u>3080</u>	LOAD STOP TIME: <u>10:23</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	GAS		9100	0

MAXIMUM BACK PRESSURE 14 TOTAL GALS. ACCOUNTABLE 9100 TOTAL LOAD GALS. 9100

SEQ. NO. <u>24</u>	TANKER NAME: <u>MARATHON</u>	LOAD START TIME: <u>10:25</u>		
BAY NO. <u>3</u>	TRAILER NO. <u>6380</u>	LOAD STOP TIME: <u>10:31</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	GAS		9050	

MAXIMUM BACK PRESSURE 13 TOTAL GALS. ACCOUNTABLE 9050 TOTAL LOAD GALS. 9050

SEQ. NO. <u>25</u>	TANKER NAME: <u>COLUMBIA OIL CO</u>	LOAD START TIME: <u>10:25</u>		
BAY NO. <u>2</u>	TRAILER NO. <u>6035</u>	LOAD STOP TIME: <u>10:37</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	No. 2		2500 1440 2600 2610	

MAXIMUM BACK PRESSURE 12 TOTAL GALS. ACCOUNTABLE 8550 TOTAL LOAD GALS. 8550

Total of load 1	<u>9150</u>	Accountable load 1	<u>9150</u>
Total of load 2	<u>9150</u>	Accountable load 2	<u>9150</u>
Total of load 3	<u>9100</u>	Accountable load 3	<u>9100</u>
Total of load 4	<u>9050</u>	Accountable load 4	<u>9050</u>
Total of load 5	<u>8550</u>	Accountable load 5	<u>8550</u>
Total this page	<u>45,000</u>	Accountable this pg.	<u>45,000</u>

TERMINAL LOCATION: \_\_\_\_\_ DATE: \_\_\_\_\_

P.6

SEQ. NO. <u>26</u>	TANKER NAME: <u>MARATHON</u>	LOAD START TIME: <u>10:29</u>		
BAY NO. <u>1</u>	TRAILER NO. <u>3147</u>	LOAD STOP TIME: <u>10:39</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	GAS		9150	

MAXIMUM BACK PRESSURE 12 TOTAL GALS. ACCOUNTABLE 9150 TOTAL LOAD GALS. 9150

SEQ. NO. <u>27</u>	TANKER NAME: <u>COLUMBIA OIL CO.</u>	LOAD START TIME: <u>10:38</u>		
BAY NO. <u>3</u>	TRAILER NO. <u>4320</u>	LOAD STOP TIME: _____		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS			9100	

164,100

MAXIMUM BACK PRESSURE 12 TOTAL GALS. ACCOUNTABLE 9100 TOTAL LOAD GALS. 9100

SEQ. NO. <u>28</u>	TANKER NAME: <u>PREMIER</u>	LOAD START TIME: <u>10:56</u>		
BAY NO. <u>2</u>	TRAILER NO. <u>5157</u>	LOAD STOP TIME: _____		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	NO.2		6625	

229,32

65,200

MAXIMUM BACK PRESSURE 14 TOTAL GALS. ACCOUNTABLE \_\_\_\_\_ TOTAL LOAD GALS. \_\_\_\_\_

SEQ. NO. <u>29</u>	TANKER NAME: <u>SUBURBAN OIL CO.</u>	LOAD START TIME: <u>10:53</u>		
BAY NO. <u>3</u>	TRAILER NO. <u>4F</u>	LOAD STOP TIME: <u>10:54</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
NO.2	NO.1			5000

MAXIMUM BACK PRESSURE 13 TOTAL GALS. ACCOUNTABLE 0 TOTAL LOAD GALS. 5000

SEQ. NO. <u>30</u>	TANKER NAME: <u>WHITE &amp; RED</u>	LOAD START TIME: <u>10:58</u>		
BAY NO. <u>4</u>	TRAILER NO. <u>23</u>	LOAD STOP TIME: <u>11:12</u>		
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	NO.2 GAS		8700	0

MAXIMUM BACK PRESSURE 13 TOTAL GALS. ACCOUNTABLE 8700 TOTAL LOAD GALS. 8700

Total of load 1	<u>9150</u>	Accountable load 1	<u>9150</u>
Total of load 2	<u>9100</u>	Accountable load 2	<u>9100</u>
Total of load 3	<u>6625</u>	Accountable load 3	<u>6625</u>
Total of load 4	<u>5000</u>	Accountable load 4	<u>0</u>
Total of load 5	<u>8700</u>	Accountable load 5	<u>8700</u>

Total this page	<u>38,575</u>	Accountable this pg.	<u>33,575</u>
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TERMINAL LOCATION: \_\_\_\_\_ DATE: \_\_\_\_\_ K.7

SEQ. NO. 31 TANKER NAME: SHIPPERS BULK 5604 LOAD START TIME: 11:00  
 BAY NO. 2 TRAILER NO. 0211 LOAD STOP TIME: 11:12

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	NO. 2		1500	700

MAXIMUM BACK PRESSURE 13 TOTAL GALS. ACCOUNTABLE 1500 TOTAL LOAD GALS. 8500

SEQ. NO. 32 TANKER NAME: PETROLEUM TRADERS LOAD START TIME: 11:05  
 BAY NO. 1 TRAILER NO. T-23 LOAD STOP TIME: 11:14

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	NO. 2		7125	

MAXIMUM BACK PRESSURE 13 TOTAL GALS. ACCOUNTABLE 7125 TOTAL LOAD GALS. 7125

SEQ. NO. 33 TANKER NAME: CHEVRON LOAD START TIME: 11:24  
 BAY NO. 3 TRAILER NO.  LOAD STOP TIME: 11:30

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	GAS		8500	

MAXIMUM BACK PRESSURE 12 TOTAL GALS. ACCOUNTABLE 8500 TOTAL LOAD GALS. 8500

SEQ. NO. 34 TANKER NAME: VOGEL OIL CO. LOAD START TIME: 11:44  
 BAY NO. 1 TRAILER NO. T545EF LOAD STOP TIME: 11:55

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
NO. 2	GAS			7500

MAXIMUM BACK PRESSURE 13 TOTAL GALS. ACCOUNTABLE 0 TOTAL LOAD GALS. 7500

SEQ. NO. 35 TANKER NAME: MARATHON LOAD START TIME: 11:44  
 BAY NO. 2 TRAILER NO. 6368 LOAD STOP TIME: 11:56

PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.
GAS	GAS		9,050	

MAXIMUM BACK PRESSURE 14 TOTAL GALS. ACCOUNTABLE 9050 TOTAL LOAD GALS. 9050

Total of load 1	<u>8500</u>	Accountable load 1	<u>1500</u>
Total of load 2	<u>7125</u>	Accountable load 2	<u>7125</u>
Total of load 3	<u>8500</u>	Accountable load 3	<u>8500</u>
Total of load 4	<u>7500</u>	Accountable load 4	<u>0</u>
Total of load 5	<u>9050</u>	Accountable load 5	<u>9050</u>

Total this page 40,675Accountable this pg. 26,175

P. 8

TERMINAL LOCATION: \_\_\_\_\_ DATE: \_\_\_\_\_

SEQ. NO. 36	TANKER NAME: <u>NEW PARIS OIL CO.</u>	LOAD START TIME: <u>11:48</u>										
BAY NO. 3	TRAILER NO. <u>T140F1C</u>	LOAD STOP TIME: <u>11:58</u>										
		<table border="1"> <thead> <tr> <th>PRODUCT</th> <th>PREV. PROD.</th> <th>LEAK</th> <th>ACCOUNTABLE GALLONS</th> <th>NON-ACCOUNTABLE GALS.</th> </tr> </thead> <tbody> <tr> <td>GAS</td> <td>GAS</td> <td></td> <td>8400</td> <td>0</td> </tr> </tbody> </table>	PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.	GAS	GAS		8400	0
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.								
GAS	GAS		8400	0								
MAXIMUM BACK PRESSURE <u>12</u>		TOTAL GALS. ACCOUNTABLE	TOTAL LOAD GALS.									
SEQ. NO. 37	TANKER NAME: <u>PETROLEUM TRADERS</u>	LOAD START TIME: <u>11:50</u>										
BAY NO. 4	TRAILER NO. <u>T451FB</u>	LOAD STOP TIME: <u>11:57</u>										
		<table border="1"> <thead> <tr> <th>PRODUCT</th> <th>PREV. PROD.</th> <th>LEAK</th> <th>ACCOUNTABLE GALLONS</th> <th>NON-ACCOUNTABLE GALS.</th> </tr> </thead> <tbody> <tr> <td>GAS</td> <td>No. 2</td> <td></td> <td>8000</td> <td>0</td> </tr> </tbody> </table>	PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.	GAS	No. 2		8000	0
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.								
GAS	No. 2		8000	0								
MAXIMUM BACK PRESSURE <u>13</u>		TOTAL GALS. ACCOUNTABLE <u>8000</u>	TOTAL LOAD GALS. <u>8000</u>									
SEQ. NO. 38	TANKER NAME: <u>MARATHON</u>	LOAD START TIME: <u>12:12</u>										
BAY NO. <del>8</del> 4	TRAILER NO. <u>6362</u>	LOAD STOP TIME: <u>12:20</u>										
		<table border="1"> <thead> <tr> <th>PRODUCT</th> <th>PREV. PROD.</th> <th>LEAK</th> <th>ACCOUNTABLE GALLONS</th> <th>NON-ACCOUNTABLE GALS.</th> </tr> </thead> <tbody> <tr> <td>GAS</td> <td>GAS</td> <td></td> <td>100 5200 2700 <u>9000</u></td> <td>0</td> </tr> </tbody> </table>	PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.	GAS	GAS		100 5200 2700 <u>9000</u>	0
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.								
GAS	GAS		100 5200 2700 <u>9000</u>	0								
MAXIMUM BACK PRESSURE <u>13</u>		TOTAL GALS. ACCOUNTABLE <u>9000</u>	TOTAL LOAD GALS. <u>9000</u>									
SEQ. NO. 39	TANKER NAME: <u>MARATHON</u>	LOAD START TIME: <u>12:23</u>										
BAY NO. 1	TRAILER NO. <u>30085</u>	LOAD STOP TIME: <u>12:30</u>										
		<table border="1"> <thead> <tr> <th>PRODUCT</th> <th>PREV. PROD.</th> <th>LEAK</th> <th>ACCOUNTABLE GALLONS</th> <th>NON-ACCOUNTABLE GALS.</th> </tr> </thead> <tbody> <tr> <td>GAS</td> <td>GAS</td> <td></td> <td>9150</td> <td>0</td> </tr> </tbody> </table>	PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.	GAS	GAS		9150	0
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.								
GAS	GAS		9150	0								
MAXIMUM BACK PRESSURE <u>13</u>		TOTAL GALS. ACCOUNTABLE <u>9150</u>	TOTAL LOAD GALS. <u>9150</u>									
SEQ. NO. 40	TANKER NAME: <u>PREMIER</u>	LOAD START TIME: <u>12:35</u>										
BAY NO. <del>2</del>	TRAILER NO. <u>T468DP</u>	LOAD STOP TIME: _____										
		<table border="1"> <thead> <tr> <th>PRODUCT</th> <th>PREV. PROD.</th> <th>LEAK</th> <th>ACCOUNTABLE GALLONS</th> <th>NON-ACCOUNTABLE GALS.</th> </tr> </thead> <tbody> <tr> <td>GAS</td> <td>20 GAS</td> <td></td> <td>7000</td> <td></td> </tr> </tbody> </table>	PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.	GAS	20 GAS		7000	
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.								
GAS	20 GAS		7000									
MAXIMUM BACK PRESSURE <u>13</u>		TOTAL GALS. ACCOUNTABLE	TOTAL LOAD GALS.									
Total of load 1	<u>8400</u>	Accountable load 1	<u>8400</u>									
Total of load 2	<u>8000</u>	Accountable load 2	<u>8000</u>									
Total of load 3	<u>9000</u>	Accountable load 3	<u>9000</u>									
Total of load 4	<u>9150</u>	Accountable load 4	<u>9150</u>									
Total of load 5	<u>7000</u>	Accountable load 5	<u>7000</u>									
Total this page	<u>41,550</u>	Accountable this pg.	<u>41,550</u>									

TERMINAL LOCATION: \_\_\_\_\_ DATE: \_\_\_\_\_

SEQ. NO. <u>41</u>	TANKER NAME: <u>MARATHON</u>	LOAD START TIME: <u>12:45</u>										
BAY NO. <u>3</u>	TRAILER NO. <u>90084</u>	LOAD STOP TIME: <u>12:55</u>										
<table border="1"> <thead> <tr> <th>PRODUCT</th> <th>PREV. PROD.</th> <th>LEAK</th> <th>ACCOUNTABLE GALLONS</th> <th>NON-ACCOUNTABLE GALS.</th> </tr> </thead> <tbody> <tr> <td>GAS</td> <td>GAS</td> <td></td> <td>9150</td> <td></td> </tr> </tbody> </table>		PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.	GAS	GAS		9150		MAXIMUM BACK PRESSURE <u>10</u> TOTAL GALS. ACCOUNTABLE <u>9150</u> TOTAL LOAD GALS. <u>9150</u>
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.								
GAS	GAS		9150									
SEQ. NO. <u>42</u>	TANKER NAME: <u>MARATHON</u>	LOAD START TIME: <u>12:52</u>										
BAY NO. <u>2</u>	TRAILER NO. <u>31147</u>	LOAD STOP TIME: <u>12:59</u>										
<table border="1"> <thead> <tr> <th>PRODUCT</th> <th>PREV. PROD.</th> <th>LEAK</th> <th>ACCOUNTABLE GALLONS</th> <th>NON-ACCOUNTABLE GALS.</th> </tr> </thead> <tbody> <tr> <td>GAS</td> <td>GAS</td> <td></td> <td>9150</td> <td></td> </tr> </tbody> </table>		PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.	GAS	GAS		9150		MAXIMUM BACK PRESSURE <u>13</u> TOTAL GALS. ACCOUNTABLE <u>9150</u> TOTAL LOAD GALS. <u>9150</u>
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.								
GAS	GAS		9150									
SEQ. NO. <u>43</u>	TANKER NAME: _____	LOAD START TIME: _____										
BAY NO. _____	TRAILER NO. _____	LOAD STOP TIME: _____										
<table border="1"> <thead> <tr> <th>PRODUCT</th> <th>PREV. PROD.</th> <th>LEAK</th> <th>ACCOUNTABLE GALLONS</th> <th>NON-ACCOUNTABLE GALS.</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.						MAXIMUM BACK PRESSURE _____ TOTAL GALS. ACCOUNTABLE _____ TOTAL LOAD GALS. _____
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.								
SEQ. NO. <u>44</u>	TANKER NAME: _____	LOAD START TIME: _____										
BAY NO. _____	TRAILER NO. _____	LOAD STOP TIME: _____										
<table border="1"> <thead> <tr> <th>PRODUCT</th> <th>PREV. PROD.</th> <th>LEAK</th> <th>ACCOUNTABLE GALLONS</th> <th>NON-ACCOUNTABLE GALS.</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.						MAXIMUM BACK PRESSURE _____ TOTAL GALS. ACCOUNTABLE _____ TOTAL LOAD GALS. _____
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.								
SEQ. NO. <u>45</u>	TANKER NAME: _____	LOAD START TIME: _____										
BAY NO. _____	TRAILER NO. _____	LOAD STOP TIME: _____										
<table border="1"> <thead> <tr> <th>PRODUCT</th> <th>PREV. PROD.</th> <th>LEAK</th> <th>ACCOUNTABLE GALLONS</th> <th>NON-ACCOUNTABLE GALS.</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.						MAXIMUM BACK PRESSURE _____ TOTAL GALS. ACCOUNTABLE _____ TOTAL LOAD GALS. _____
PRODUCT	PREV. PROD.	LEAK	ACCOUNTABLE GALLONS	NON-ACCOUNTABLE GALS.								
Total of load 1	<u>9150</u>	Accountable load 1	<u>9150</u>									
Total of load 2	<u>9150</u>	Accountable load 2	<u>9150</u>									
Total of load 3	_____	Accountable load 3	_____									
Total of load 4	_____	Accountable load 4	_____									
Total of load 5	_____	Accountable load 5	_____									
Total this page	<u>18,300</u>	Accountable this pg.	<u>18,300</u>									

84,700

Accountable 265,450

Total 350,150

## APPENDIX B



July 1, 1991

John Jordan Service Co.  
2820 S. English Station Rd.  
P. O. Box 99535  
Louisville KY 40299

Reference P.O. # J-1392

Gentlemen:

Below are the results of the analysis you requested as reported by our laboratory. Results are in volume percent, unless otherwise indicated.

CYLINDER NUMBER: RR-24969

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	2.50%	2.506%
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: RR-32766

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	1.50%	1.513%
NITROGEN	BALANCE	BALANCE

Sincerely yours,  
MATHESON GAS PRODUCTS, INC.

*Wray LaFond/sad*

Wray LaFond  
Branch Manager

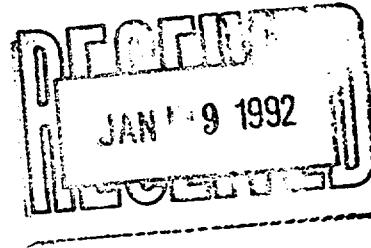
WL/bc

1650 Enterprise Parkway  
P.O. Box 358  
Twinsburg, Ohio 44087  
Phone: (216) 425-4406  
Toll Free: (800) 426-9427



January 6, 1991

John Jordan Service Co.  
2820 S. English Station Rd.  
P. O. Box 99535  
Louisville KY 40299



Reference P.O. # J-684

Gentlemen:

Below are the results of the analysis you requested as reported by our laboratory. Results are in volume percent, unless otherwise indicated. This cylinder was shipped on work order 109-73809 dated 4-7-89.

CYLINDER NUMBER: 6-572

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	4.50%	4.504%
NITROGEN	BALANCE	BALANCE

Sincerely yours,  
MATHESON GAS PRODUCTS, INC.

*Wray LaFond/lk*

Wray LaFond  
Branch Manager

WL/sad

1650 Enterprise Parkway  
P.O. Box 358  
Twinsburg, Ohio 44087  
Phone: (216) 425-4406  
Toll Free: (800) 426-9427

*Gas*

CYLINDER NUMBER: FF-14758

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	9.00%	9.000% ?
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-9397 ✓

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	18.00%	17.976%
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-4041 ✓

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	18.00%	17.983%
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-1591

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	40.00%	39.858% ?
NITROGEN	BALANCE	BALANCE

Sincerely yours,  
MATHESON GAS PRODUCTS, INC.

*Wray LaFond/kk*

Wray LaFond  
Branch Manager

July 12, 1990



John Jordan Service Co.  
2820 S. English Station Rd.  
P. O. Box 99535  
Louisville, Kentucky 40299

Reference P.O.# J1042

Gentlemen:

Below are the results of the analysis you requested as reported by our laboratory. Results are in volume percent, unless otherwise indicated.

CYLINDER NUMBER: FF-12415

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	80.00%	79.938% ✓
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-26586

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	80.00%	79.974% ?
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: RR-36469

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	80.00%	80.100% ?
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-20160

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	40.00%	39.763% ✓
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-33480

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	40.00%	39.912% ?
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: RR-1720

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	40.00%	39.976% ?
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-039169

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	45.00%	44.965% ?
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-38654

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	45.00%	44.970% ✓
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-38259

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	80.00%	79.649% ✓
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-22865

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	80.00%	79.775% ✓
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-039538

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	80.00%	79.967% ?
NITROGEN	BALANCE	BALANCE

CYLINDER NUMBER: FF-22171

<u>COMPONENT</u>	<u>REQUESTED</u>	<u>ACTUAL</u>
PROPANE	45.00%	45.008% ✓
NITROGEN	BALANCE	BALANCE

Sincerely yours,  
MATHESON GAS PRODUCTS, INC.

  
Wray LaFond  
Branch Manager

WL/bc

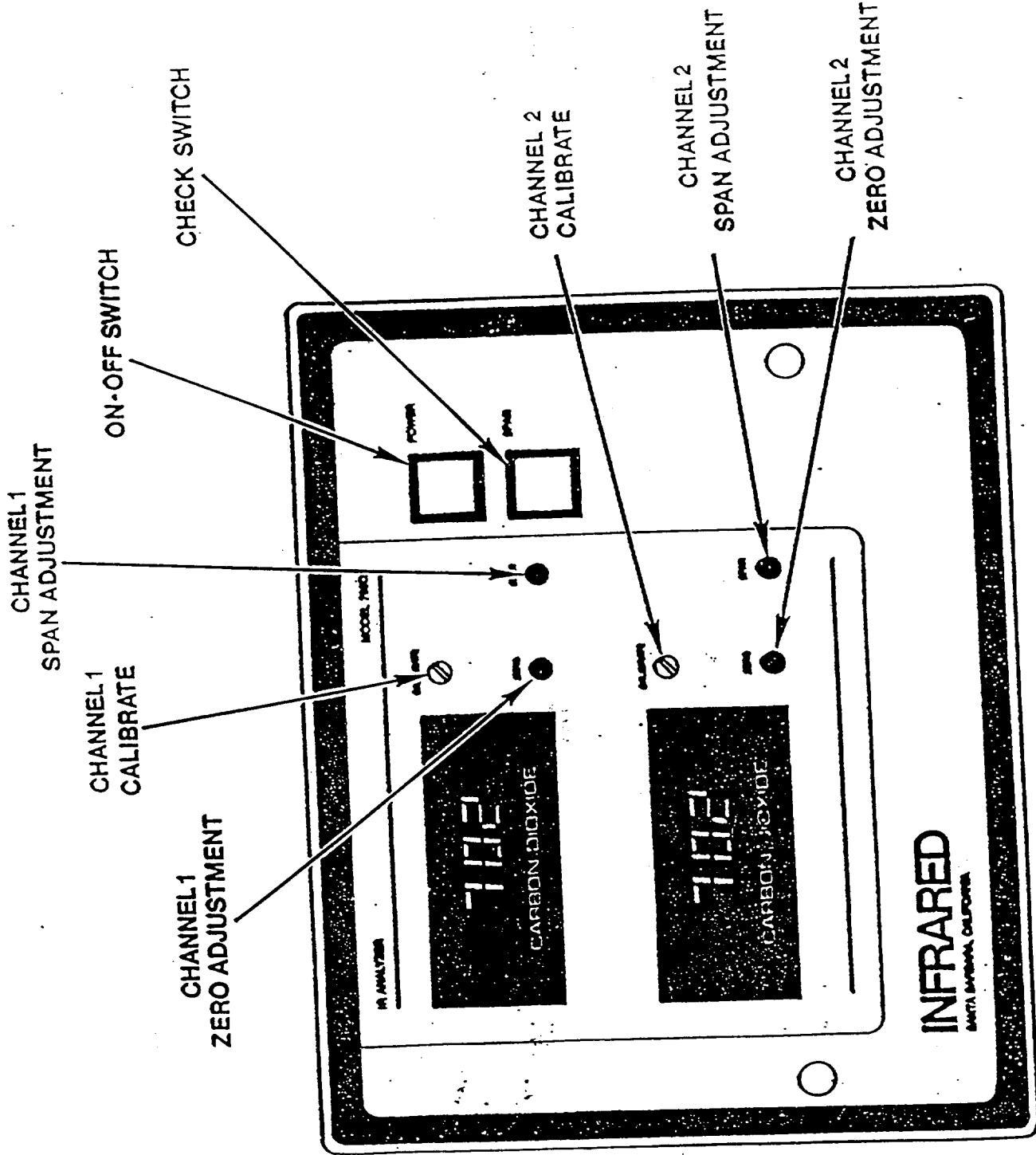


Figure 1-2  
Front Panel Arrangement

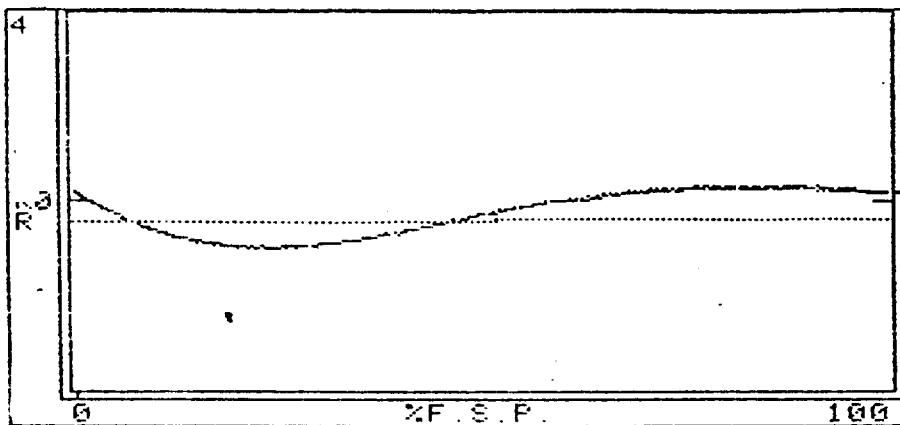
**SETRA SYSTEMS**  
PRESSURE TRANSDUCER CALIBRATION CERTIFICATE

PROD. ORD.: STOCK-211710  
TECHNICIAN: LM  
STANDARD: 239.SFD10  
PART NO.: 264100.27

S/N 211710  
DATE 6-6-89

MODEL: 264  
RANGE: 0-25 IN-WC  
OUT: .025 TO 5.025 VDC  
EXCIT: 24 VDC

---CALIBRATION ERROR CURVE---



---CALCULATIONS---

APPLIED PRESSURE	TRANSDUCER OUTPUT	PERCENT ERROR
+0000.009 IN-W	+00.0384VDC	+00.637% FS
0002.558 IN-W	+00.5015VDC	-00.309% FS
0005.045 IN-W	+00.9829VDC	-00.637% FS
+0007.560 IN-W	+01.4903VDC	-00.559% FS
+0010.000 IN-W	+01.9921VDC	-00.293% FS
0012.546 IN-W	+02.5193VDC	+00.056% FS
+0015.084 IN-W	+03.0428VDC	+00.364% FS
+0017.508 IN-W	+03.5379VDC	+00.562% FS
-0020.046 IN-W	+04.0499VDC	+00.637% FS
-0022.570 IN-W	+04.5538VDC	+00.610% FS
+0025.042 IN-W	+05.0452VDC	+00.539% FS

NOTE THAT PERCENTAGE  
ERROR CALCULATIONS ARE  
RELATIVE TO THE  
BEST STRAIGHT LINE,  
AS DEFINED BY ISA  
STANDARD #S-37.1.

ZERO ERROR: +00.232% FS  
SPAN ERROR: +00.002% FS  
HYSTERESIS: -00.003% FS

SETRA SYSTEMS CALIBRATION DATA IS TRACEABLE TO THE N.B.S.

EXTRAPOLATED ENDPOINTS: 0 IN-WC +00.0366VDC  
25 IN-WC +05.0367VDC

OPTIONS: NONE

TABLE 1

ANALOG OUTPUT VOLTAGES FOR VARIOUS PRESSURE RANGES, MODEL 361. (Revised June 29, 1982)

PRESSURE	PRESSURE RANGE AND DIGITAL DISPLAY		ANALOG OUTPUT* RELATIVE TO OUTPUT RETURN	NOMINAL ANALOG OUTPUT** RELATIVE TO ANALOG GROUND
	All Ranges	0 to 5.000V ( $\pm 5$ mV)		
Absolute		<u>0 to 2.400V (<math>\pm 3</math> mV)</u>		
Barometric	800 to 1100 mBar	<u>0 to 2.909V (<math>\pm 3</math> mV)</u>	6.40 to 8.80 V	6.40 to 9.31 V
	11 to 16 Psia	<u>0 to 2.400V (<math>\pm 3</math> mV)</u>	6.40 to 8.80 V	6.40 to 9.31 V
	600 to 825 mmHg	<u>0 to 2.909V (<math>\pm 3</math> mV)</u>	6.40 to 9.31 V	6.40 to 9.31 V
	22 to 32 in. Hg (4 digits only)	<u>0 to 2.909V (<math>\pm 3</math> mV)</u>		

\* Calibrated into 50Kohm load; operable into loads of 5000 ohms or greater.

\*\* The 6.40 V may vary  $\pm$  several millivolts from unit to unit.

NOTE: Analog output voltages typically are measured between the Analog Output (Contact 35) and the Analog Return (Contact 37) on the edge connector.

The Analog Return is 6.4 VDC above the Analog Ground (Contact 32).

FOR BAROMETRIC PRESSURE UNITS: The Analog Output (Contact 35) with respect to Analog Ground (Contact 32) projects linearly to zero VDC at true absolute zero pressure. Analog output may be measured with respect to Analog Return or Analog Ground, but not both simultaneously.

## SERIES 300 DIGITAL PRESSURE MEASUREMENT SYSTEM

## CALIBRATION CERTIFICATE

PRESSURE RANGE: 800 to 1100 mbarSETRA JOB NO.: 3072BRPURCHASED BY: JOHN JORDAN SERVICE CO.

PURCHASE ORDER NO.: \_\_\_\_\_

LINE VOLTAGE: 117 VAC 60 HZDATE OF INSPECTION: 12-14-87MANOMETER MODEL NO.: 361

TRANSDUCER MODEL NO.: \_\_\_\_\_

READOUT MODEL NO.: \_\_\_\_\_

INSPECTOR: G. AHERNOUTPUT @  $70^{\circ} \pm 5$  F\*

Analog Voltage (Volts dc)
Digital Display (mbar)

SERIAL NUMBERS <input checked="" type="checkbox"/> Manom- <input type="checkbox"/> Trans- eter <input type="checkbox"/> ducer <input type="checkbox"/> Readout	APPLIED PRESSURE <u>800 mbar</u>	APPLIED PRESSURE <u>1100 mbar</u>	APPLIED PRESSURE	
<u>138365</u>	<u>+00014</u>	<u>2.4002</u>		
	<u>800.0</u>	<u>1100.0</u>		

NOTES: REPLACED SENSOR WIRE, MINOR RECAL, FINAL Q.C.

THIS CALIBRATION CERTIFIED PER NBS TRACEABLE STANDARDS

\*NOTE: Installation or removal of pressure fitting may change zero output slightly.  
 See operating instructions if zero output readjustment wanted.

## OPTIONS

Remote Zero  Remote Sensitivity  BCD Output  Remote Cal  
 Other

Setra Systems, Inc.  
 45 Nagog Park, Acton, MA 01720 (617)263-1400

SS0330 10/26/84

**Meter  
Designation**

۱۷

GT 175#



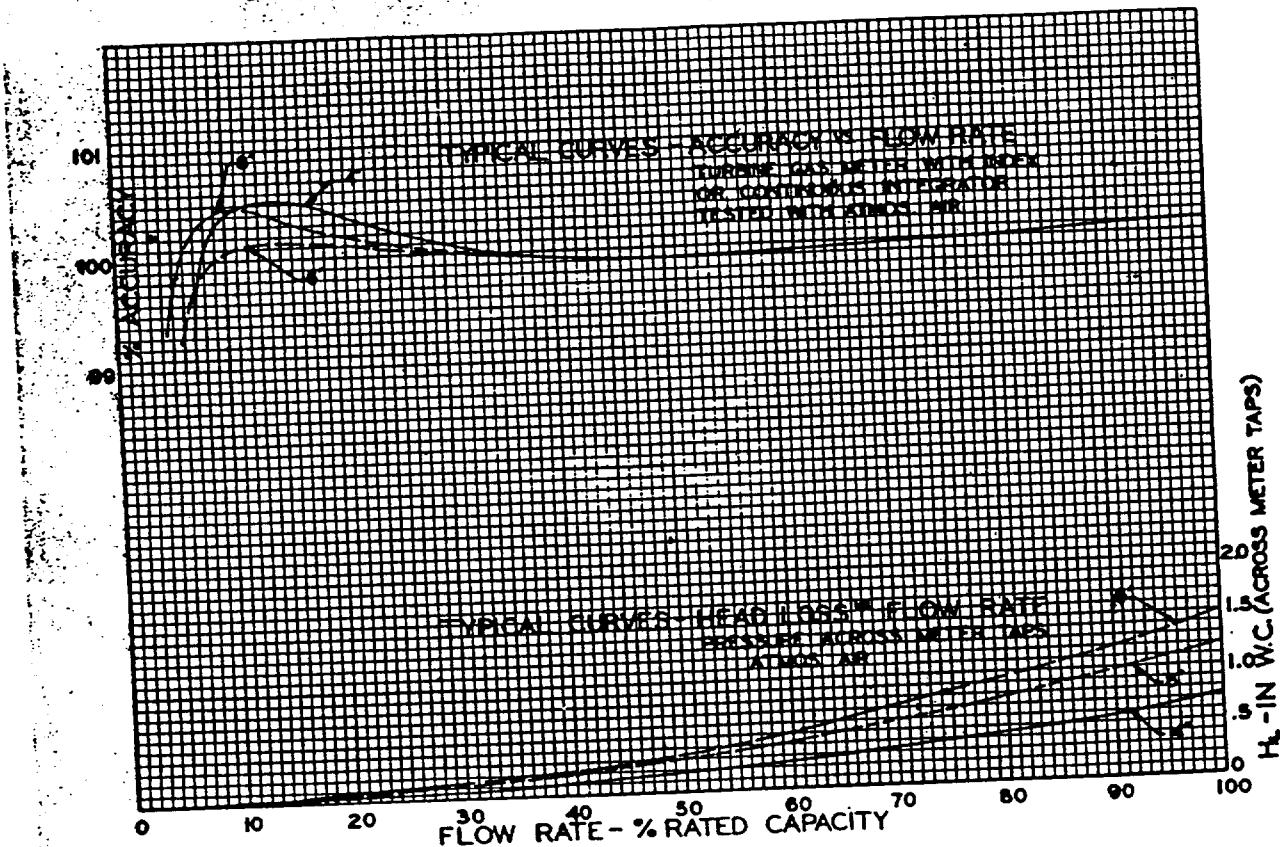
The logo consists of a circular emblem containing a stylized 'S' shape, positioned above the company name.

**Manufacturer's Number**

83-21429

Cartridge Number  
M 17201

## **AMERICAN GAS TURBINE METER**



Chg. gears 46/59

FLOW RATE (AIR)	% ACCURACY	DIFFERENTIAL (inches H <sub>2</sub> O) Tested on air
38,500	99.8	.30
8,000	100.8	.07
3,000	99.2	.02

**Customer:** Economy Power

Date tested: 5/4/83

1-7145-3.....

Tested by: ..... 455 .....

## EXAMPLE CALCULATION

RUN #1

$$\text{DENSITY} = \frac{(1.325) (\text{BAROMETRIC PRESSURE INCHES OF H.G})}{\text{ABSOLUTE TEMPERATURE } ^\circ\text{R FOR METER}}$$

$$\text{DENSITY} = \frac{1.325 \times 30.366}{541.14}$$

$$\text{DENSITY} = .0743$$

AIR VELOCITY

REFERENCE METER = 1096.2

$$\sqrt{\frac{\text{VELOCITY PRESSURE INCHES OF WATER REF. METER}}{\text{DENSITY}}}$$

AIR VELOCITY

REFERENCE METER = 1096.2

$$\sqrt{\frac{.051}{.07435}}$$

AIR VELOCITY

REFERENCE METER = 907.892 FT./MIN.

FLOW IN CU. FT. PER 5 MIN.  
REFERENCE METER

$$= (5 \text{ MIN.}) (907.892 \text{ FT./MIN.}) (\text{DUCT AREA})$$

FLOW IN CU. FT. PER 5 MIN.  
REFERENCE METER

$$= (5) (907.892) (.34903)$$

FLOW IN CU. FT. PER 5 MIN.  
REFERENCE METER

$$= 1584.412 \text{ FT.}^3 / 5 \text{ MIN.}$$

$$\text{YM} = \frac{(\text{REF METER READING CU.FT/5MIN})(\text{TEMP REF METER } 273)(\text{BARO PRESSURE MM H.G})}{(\text{TEST METER READING CU.FT/5MIN})(\text{TEMP TEST METER } 273)(\text{BARO PRESSURE MM H.G})} \\ (\text{PLUS STACTIC PRESSURE MM H.G})$$

$$\text{YM} = \frac{(1584.412) (300.3) (771.3)}{(1536.132) (300.3) (771.68)}$$

$$\text{YM} = 1.03$$

UNA

8" TURBINE METER POST TEST  
8" DUCT FOR AIR FLOW TRAIN

ERSE POINT	DUCT TEMP°C TEMP°F	BAROMETRIC PRESSURE mm H.g in H.g	STATIC PRESSURE mm H.g	REFERENCE METER VELOCITY in of H <sub>2</sub> O	REFERENCE METER CUBIC FEET	TEST METER CUBIC FEET	YM COEFFICIENT
#1 .5"				.045			
2"				.060			
6"				.058			
7.5"				.040			
RAGE	27.3/81.14	771.3/30.366	380	.051	1584.412	1534.132	1.03
#2 .5"				.045			
2"				.060			
6"				.058			
7.5"				.040			
RAGE	27.9/82.22	771.4/30.370	360	.0567	1581.338	1532.6	1.03
#3 .5"				.040			
2"				.058			
6"				.059			
7.5"				.041			
RAGE	28.2/82.76	771.5/30.374	374	.0495	1563.565	1539.663	1.01

Ymbaria 102

Run A

	TIME	AMBIENT-T	EXHAUST-T	BARO-P	EXHAUST-P	HC/IN	HC/OUT	ABSOLUTE-P	VE	VES	ME
1	0	29.4	(27.3)	(771.3)	(.380)	49.2	.600	771.7	(43.5)	43.1	4739396.0
2	1208	30.1	(27.9)	(771.4)	(.360)	59.7	.651	771.8	(43.4)	42.9	5126884.0
3	1215	30.2	(28.2)	(771.5)	(.374)	74.2	.628	771.9	(43.6)	43.1	4951418.4

8" TURBINE METER POST TEST  
8" DUCT FOR AIR FLOW TRAIN

ERSE POINT	DUCT TEMP °C TEMP °F	BAROMETRIC PRESSURE mm H.g in H.g	STATIC PRESSURE mm H.g in H.g	REFERENCE METER VELOCITY in of H <sub>2</sub> O	REFERENCE METER CUBIC FEET	TEST METER CUBIC FEET	YM COEFFICIENT
#1 .5"				Φ. Φ2Φ			
2"				Φ. Φ3Φ			
6"				Φ. Φ31			
7.5"				Φ. Φ28			
RAGE	3Φ.Φ/86.4	771.3 / 3Φ.366	Φ. Φ23	Φ. Φ273	1164.39	1137.Φ91	1.Φ24
#2 .5"				Φ. Φ19			
2"				Φ. Φ3Φ			
6"				Φ. Φ31			
7.5"				Φ. Φ29			
RAGE	2Φ.Φ/85.28	771.2 / 3Φ.362	Φ. Φ16	Φ. Φ273	1163.699	1133.559	1.Φ26
#3 .5"				Φ. Φ19			
2"				Φ. Φ29			
6"				Φ. Φ3Φ			
7.5"				Φ. Φ29			
RAGE	2Φ.Φ/84.92	771.1 / 3Φ.358	Φ. Φ18	Φ. Φ267	115Φ.536	1126.497	1.Φ21

✓<sub>m</sub> AVG 1.Φ2

vn B

# Run B

T	E	AMBIENT-T	EXHAUST-T	BARO-P	EXHAUST-P	HC/IN	HC/OUT	ABSOLUTE-P	VE	VES	ME	
1	4		32.0	(30.0)	(771.3)	(.023)	80.0	.644	771.3	(32.2)	31.6	3727324.0

T	E	AMBIENT-T	EXHAUST-T	BARO-P	EXHAUST-P	HC/IN	HC/OUT	ABSOLUTE-P	VE	VES	ME	
1	23		32.1	(29.6)	(771.2)	(.016)	86.0	.651	771.3	(32.1)	31.6	3770480.4

ME	AMBIENT-T	EXHAUST-T	BARO-P	EXHAUST-P	HC/IN	HC/OUT	ABSOLUTE-P	VE	VES	ME	
140		32.1	(29.4)	(771.1)	(.018)	83.1	.647	771.1	(31.9)	31.3	3710707.2

Run # C

8" TURBINE METER POST TEST  
8" DUCT FOR AIR FLOW TRAIN

AVERSE POINT	DUCT TEMP °C TEMP °F	BAROMETRIC PRESSURE mm H.g in H.g	STATIC PRESSURE mm H.g	REFERENCE METER VELOCITY in of H <sub>2</sub> O	REFERENCE METER CUBIC FEET	TEST METER CUBIC FEET	YM COEFFICIENT
JN #1 .5"				.005			
2"				.008			
6"				.008			
7.5"				.007			
VERAGE	31.4 / 88.52	771.0 / 30.354	.018	.007	591.089	582.671	1.014
JN #2 .5"				.005			
2"				.008			
6"				.008			
7.5"				.006			
VERAGE	31.9 / 89.42	770.9 / 30.350	.017	.00675	580.951	575.608	1.009
JN #3 .5"				.005			
2"				.008			
6"				.008			
7.5"				.007			
VERAGE	31.8 / 89.24	770.9 / 30.350	.018	.0002	591.514	579.139	1.021

Averag. 1.01

Run #3

TIME	AMBIENT-T	EXHAUST-T	BARO-P	EXHAUST-P	HC/IN	HC/OUT	ABSOLUTE-P	VE	VES	ME
14	32.5	(31.4)	(771.0)	(.018)	69.0	.624	771.0	(16.5)	16.1	1844141.8
1421	32.7	(31.9)	(770.9)	(.017)	76.6	.639	770.9	(16.3)	15.9	1862699.8
1427	32.9	(31.8)	(770.9)	(.018)	82.3	.649	770.9	(16.9)	16.4	1955545.2

Post test calibration DATA.

Barometer, & exhaust temperature probes.

DATE June 29 1990

Temp probe reference °C	Temp probe test °C	Error
27.9 °C	27.6 °C	1.07%
.3°C	.3°C	0.08

measuring barometer Barometer reference mm Hg	Barometer test mm Hg	Error
771.5 mm Hg	771.2 mm Hg	.3mm Hg

TIME	AMBIENT-T	EXHAUST-T	BARO-P	EXHAUST-P	HC/IN	HC/OUT	ABSOLUTE-P	VE	VES	ME
10.	27.6	(27.6)	(771.2)	.017	26.1	.546	771.2	.0	.0	.0

*Supporting Computer DATA*

AMBIENT-T	EXHAUST-T	BARO-P	EXHAUST-P	HC/IN	HC/OUT	ABSOLUTE-P	VE	VES	ME
27.6	.3	771.2		.017	34.9	.424	771.2	.0	.0

Supporting Computer DATA

HORIBA INSTRUMENTS INC.  
LINEARIZER CALIBRATION TABLE

Ø-100 % C3H8

April 17, 1991

PIR-2000  
1 mm

JORDAN SERVICE CO.

SERIAL#607030

INPUT %F.S.	CONCENTRATION	POT #	OUTPUT 0-1 V
0	.003	0	0
8	5.457	1	.0546
16	11.196	2	.112
24	17.263	3	.1726
32	23.702	4	.237
40	30.559	5	.3056
50	39.786	6	.3979
60	49.828	7	.4983
70	60.775	8	.6078
85	79.1	9	.791
100	99.997	10	1

PO # J1311

HORIBA INSTRUMENTS INC.  
LINEARIZER CALIBRATION TABLE

Ø - 20% C<sub>3</sub>H<sub>8</sub>

April 24, 1991

PIR-2000  
6 M.M.

SERIAL# JOHN F. JO  
*.902013*

INPUT %F.S.	CONCENTRATION	POT #	OUTPUT Ø-1 V
0	-.016	Ø	-.0008
8	1.067	1	.0533
16	2.145	2	.1072
24	3.262	3	.1631
32	4.455	4	.2228
40	5.754	5	.2877
50	7.558	6	.3779
60	9.591	7	.4796
70	11.865	8	.5932
85	15.712	9	.7856
100	20.001	10	1

**Industrial Gas Division**  
Air Products and Chemicals, Inc.  
P.O. Box 32576  
Louisville, KY 40232  
Telephone (502) 456-6222

**AIR  
PRODUCTS**

October 5, 1987

John Jordan Service Co.  
P.O. Box 99535  
Louisville, KY 40299

Attn: Donna Keeling

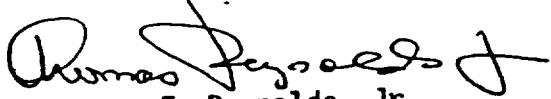
Dear Ms. Keeling,

This is to certify that under normal use and conditions, the shelf life of the span gas propane/nitrogen that we supply to John Jordan Service Company should last in excess of one year.

If any further clarification is needed, contact me at (502) 456-6222.

Sincerely,

AIR PRODUCTS AND CHEMICALS, INC.



Thomas F. Reynolds, Jr.  
District Manager

TFR/km



IR-2200 OXYGEN ANALYZER  
OPERATIONS & MAINTENANCE MANUAL

This manual describes the installation, calibration, operation, and routine maintenance of the OFC INFRARED INSTRUMENTS.

Before operating this instrument it is recommended that the user read through this manual to insure efficient operation and accurate results.

OFC INFRARED INSTRUMENTS.

Mailing Address  
P.O. Box 6935, Ventura, California 93003

Shipping Address  
4820 McGrath Street., Ventura, California 93003  
(805) 650-5005

INSTRUMENT IDENTIFICATION SHEET

MODEL NUMBER: IR 2200-3052.5

SERIAL NUMBER: 4156

GAS: O<sub>2</sub>

FULL SCALE VALUE: 1.000 10.00 25.0 %

RECORDER OUTPUT: R<sub>2</sub> = 100 mV

SPECIAL DATA: INTERNAL  
PUMP ASS'Y PER 53472

ORIGINAL PURCHASER - TO WHICH THE ATTACHED WARRANTY IS EXTENDED:

FISHER SUPPLY CO

DATE OF ORIGINAL SHIPMENT: 12 JUNE 91

COMPUTER PRINTOUT LEGEND

AMBIENT-T ----- Ambient temperature -- ° Celsius.

EXHAUST-T ----- Exhaust temperature -- ° Celsius.

EXHAUST-P ----- Exhaust pressure ----- mm Hg.

BARO-P----- Barometric pressure -- mm Hg.

HC/IN ----- Inlet HC (when used) - % by volume.

HC/OUT ----- Exhaust HC ----- volume fraction of hydrocarbon.

VES ----- Flow ----- standard cubic meters.

ME ----- Total milligrams ----- mg of VOC emitted.

VE ----- Flow ----- cubic meters.

VAPOR RECOVERY SYSTEM PERFORMANCE TEST

JOHN JORDON SERVICE COMPANY  
TECHNICAL SERVICES GROUP  
502 267-8344

Test for : MARATHON  
LEBANON, OHIO

The unit tested was a JOHN ZINK

JOHN HALL and RICHARD HALL performed the test on 06-04-1992

Test performed with mobile lab #1.

The strip chart recorder speed is 120 mm per hour.

A benzene test sample was taken also

\*\*\*\*\*

All data fields are rounded 2 places following the decimal for display purposes.

Internal to the program all data fields are 8 digits and 12 bit fields.

\*\*\*\*\*

OUTLET CALIBRATION GAS INFORMATION

Outlet analyzer range is 0 - 5%

Allowable range is + or - 5% of actual span gas concentration

Low range span gas concentration	:	1.513 %, Cylinder # RR-32766
Mid range span gas concentration	:	2.506 %, Cylinder # RR-24969
Hi range span gas concentration	:	4.504 %, Cylinder # 6-572
Zero span analyzer reading	:	0.01 %
Low range analyzer reading	:	1.51 %
Low range analyzer error	:	0.12 %
Mid range analyzer reading	:	2.47 %
Mid range analyzer error	:	-1.60 %
Hi range analyzer reading	:	4.34 %
Hi range analyzer error	:	-3.75 %

\*\*\*\*\*

INLET CALIBRATION GAS INFORMATION

Allowable range is + or - 5% of actual span gas concentration

Low range span gas concentration	:	17.976 %, Cylinder # FF-9397
Mid range span gas concentration	:	39.763 %, Cylinder # FF-20160
Hi range span gas concentration	:	79.967 %, Cylinder # FF-039538
Zero span analyzer reading	:	0.0 %
Low range analyzer reading	:	18.5 %
Low range analyzer error	:	-2.41 %
Mid range analyzer reading	:	39.5 %
Mid range analyzer error	:	-0.57 %
Hi range analyzer reading	:	78.0 %

\*\*\*\*\*

Time	Baro-P mm Hg	Exhaust-P mm Hg	Ambient-T Deg C	Exhaust-T Deg C	HCin %	HCout %	VE mtr^3	VES mtr^3	ME mg
07:06	755.8	0.5	-54.7	15.5	29.5	0.04	0.1	0.1	72.57201
07:11	755.2	0.6	-1.7	16.9	35.8	0.01	2.7	2.7	741.4755
07:16	755.3	0.9	14.5	16.8	31.5	0.02	23.4	23.6	7434.922
07:21	755.3	0.7	1.6	16.2	33.2	0.06	17.1	17.3	17406.91
07:26	755.3	0.5	9.9	16.6	34.7	0.08	4.3	4.4	6087.191
07:31	755.3	1.8	14.8	16.6	10.6	0.03	40.3	40.6	25442.38
07:36	755.4	0.9	14.5	16.4	1.4	0.05	23.9	24.1	23062.55
07:41	755.4	1.3	14.6	16.2	11.4	0.08	35.1	35.4	49623.16
07:46	755.0	2.0	14.8	16.3	8.9	0.05	41.7	42.1	30242.89
07:51	754.9	2.3	15.0	16.6	6.1	0.04	50.7	51.1	30267.79
07:56	754.9	0.6	14.7	16.6	10.6	0.04	12.9	13.0	9671.682
08:01	754.9	0.8	14.7	16.5	5.6	0.04	20.3	20.4	15494.51
08:06	754.9	1.5	14.9	16.6	6.9	0.03	34.3	34.6	14829.76

Inlet span check completed at 08:08:45 the reading is : 39.5 % Allowable : 37.2 thru 41.9

Inlet zero check completed at 08:10:30 the reading is : 0.0 % Allowable : -2.3 thru 2.3

Outlet span check completed at 08:11:35 the reading is : 2.53 % Allowable : 2.34 thru 2.60

08:11	755.1	0.5	14.8	16.7	0.0	0.00	0.0	0.0	0
-------	-------	-----	------	------	-----	------	-----	-----	---

Outlet zero check completed at 08:16:25 the reading is : 0.02 % Allowable : -0.12 thru 0.14

08:16	755.2	0.5	14.8	16.8	0.0	0.00	0.0	0.0	0
08:21	755.2	1.7	15.0	16.6	16.8	0.06	37.8	38.1	37707.06
08:26	754.9	3.3	15.5	17.0	11.8	0.04	65.7	66.3	47446.65
08:31	754.9	0.5	15.1	17.0	20.5	0.07	8.4	8.4	10483.81
08:36	754.9	0.5	15.0	17.1	30.9	0.07	1.5	1.5	1762.838
08:41	755.1	1.1	15.1	17.2	26.5	0.04	18.2	18.3	11664.64
08:46	755.1	3.4	15.8	17.4	19.1	0.06	68.0	68.4	75185.74
08:51	755.3	0.9	15.3	17.3	8.4	0.08	24.3	24.4	38589.26
08:56	755.2	0.6	15.4	17.2	12.7	0.08	6.6	6.6	9067.563

Time	Baro-P mm Hg	Exhaust-P mm Hg	Ambient-T Deg C	Exhaust-T Deg C	H Cin %	H Cout %	VE mtr^3	VES mtr^3	ME mg
09:01	755.1	2.3	15.7	17.4	7.5	0.04	48.6	48.8	29937.53
Outlet span check completed at 09:03:59 the reading is : 2.49 % Allowable : 2.34 thru 2.60									
Outlet zero check completed at 09:06:34 the reading is : 0.02 % Allowable : -0.12 thru 0.14									
09:06	755.1	0.5	15.5	17.5	20.5	0.03	2.9	2.9	1500.659
Inlet span check completed at 09:08:49 the reading is : 39.5 % Allowable : 37.2 thru 41.9									
Inlet zero check completed at 09:11:29 the reading is : 0.0 % Allowable : -2.3 thru 2.3									
09:11	756.9	0.6	15.9	16.9	0.0	0.00	0.0	0.0	0
09:16	755.3	0.6	15.7	17.5	9.1	0.04	6.7	6.8	4851.522
09:21	755.0	2.4	16.3	17.7	5.1	0.03	53.1	53.3	23045.78
09:26	754.9	0.8	16.0	17.8	11.2	0.04	22.0	22.1	13753.42
09:31	755.0	0.7	16.1	17.8	16.3	0.05	13.8	13.8	12396.94
09:36	755.1	2.3	16.7	17.9	22.8	0.04	46.0	46.2	27798.31
09:41	754.9	0.9	16.8	18.3	5.2	0.02	24.4	24.4	6330.399
09:46	754.9	0.9	16.9	18.3	9.4	0.04	22.9	22.9	19223.47
09:51	755.0	0.5	16.8	18.3	7.9	0.06	8.6	8.6	8982.967
09:56	755.0	1.3	17.0	18.4	27.4	0.02	26.7	26.7	10402.43
Inlet span check completed at 09:58:58 the reading is : 39.4 % Allowable : 37.2 thru 41.9									
Inlet zero check completed at 10:01:48 the reading is : 0.0 % Allowable : -2.3 thru 2.3									
10:01	754.7	0.5	16.5	18.5	34.6	0.02	3.2	3.2	905.7639
Outlet span check completed at 10:02:58 the reading is : 2.51 % Allowable : 2.34 thru 2.60									
Outlet zero check completed at 10:06:23 the reading is : 0.02 % Allowable : -0.12 thru 0.14									
10:06	754.8	0.5	16.6	18.4	0.0	0.00	0.0	0.0	0
10:11	755.0	1.2	16.6	18.4	20.5	0.04	23.7	23.7	18052.84
10:16	754.7	5.0	17.9	19.0	24.1	0.03	88.0	88.3	46130.8
10:21	754.5	1.0	17.5	19.0	27.7	0.05	26.4	26.3	24252.24
10:26	754.7	1.8	17.8	19.2	13.9	0.06	43.3	43.2	44911.64
10:31	755.0	2.0	17.4	19.3	14.4	0.04	39.5	39.4	16003.43

Time	Baro-P mm Hg	Exhaust-P mm Hg	Ambient-T Deg C	Exhaust-T Deg C	H Cin %	H Cout %	VE mtr^3	VES mtr^3	ME mg
10:36	754.7	1.9	17.4	19.7	26.4	0.03	44.1	44.0	19793.59
10:41	754.5	1.2	18.1	19.7	11.7	0.04	31.6	31.5	24548.64
10:46	754.7	0.5	18.1	19.5	7.4	0.05	2.2	2.2	1960.881
10:51	754.8	2.5	18.1	19.7	8.1	0.00	44.1	44.0	651.4324
10:56	754.6	1.0	17.6	19.9	8.7	0.02	26.9	26.7	7997.976
11:01	754.5	2.3	17.9	19.8	4.1	0.01	47.3	47.1	10866.49
11:06	754.8	1.2	17.7	19.8	5.2	0.01	31.1	30.9	5516.212
11:11	754.6	2.2	18.1	20.1	7.9	0.01	49.2	49.0	2739.904
11:16	754.4	0.5	17.6	19.8	17.8	0.01	6.0	5.9	1292.824

Outlet span check completed at 11-17-46 the reading is : - 2.42.7 Allowable : - 2.34 thru - 2.60

Outlet zero check completed at 11:19:26 the reading is : -0.027 Allowable : -0.12 thru 0.14

11:21	754.4	0.5	17.4	19.5	0.0	0.00	0.0	0.0	0
11:26	754.7	1.4	17.6	19.5	32.2	0.01	30.4	30.3	1840.943
11:31	754.5	0.7	17.4	19.6	37.0	0.00	18.9	18.8	0
11:36	754.3	0.5	17.4	19.4	37.5	0.00	4.4	4.4	0
11:41	754.4	0.5	17.3	19.3	33.3	0.00	2.0	2.0	11.1261
11:46	754.6	3.4	17.8	19.6	18.2	0.02	59.4	59.3	28264.83
11:51	754.4	3.1	17.8	19.8	14.4	0.05	63.9	63.7	55711.14
11:56	754.0	0.7	17.4	19.6	6.5	0.04	19.5	19.4	12602.1

Outlet span check completed at 11:57:46 the reading is : -2.43 % Allowable : -2.34 thru +2.60

Outlet zero check completed at 11:59:46 the reading is : -0.023 Allowable : -0.12 thru 0.14

Inlet span check completed at 12:01:46 the reading is + 38.1 % Allowable + 33.3 thru -41.8

12:01	753.9	0.5	17.1	19.4	0.0	0.00	0.0	0.0	0
Inlet zero check completed at 12:04:20 the reading is : 0.0 % Allowable : -2.3 thru 2.3									
12:06	754.0	1.3	17.2	19.5	31.1	0.00	7.8	7.8	49.77677
12:11	754.3	0.7	17.1	19.3	24.8	0.00	10.5	10.5	0
12:16	754.1	1.0	17.1	19.2	12.9	0.02	28.3	28.2	7999.547

Time	Baro-P mm Hg	Exhaust-P mm Hg	Ambient-T Deg C	Exhaust-T Deg C	HCin %	HCout %	VE m³	VES m³	ME mg
12:21	754.0	1.7	17.0	19.1	23.9	0.02	26.3	26.2	1987.729
12:26	754.1	1.3	17.2	19.5	32.8	0.01	33.6	33.5	6490.058
12:31	754.3	0.5	17.3	19.1	33.6	0.02	6.1	6.0	1845.46
12:36	754.1	0.6	16.9	18.9	34.9	0.02	11.3	11.3	4306.723
12:41	753.9	1.5	17.0	19.0	30.5	0.01	32.6	32.5	1500.242
12:46	753.9	0.7	16.7	19.0	35.3	0.00	17.2	17.1	172.1708
12:51	753.9	1.3	16.8	18.9	33.1	0.02	33.2	33.1	15799.49
12:56	754.0	0.6	16.9	18.9	25.7	0.07	14.2	14.1	16459.28
13:01	754.2	1.2	17.1	19.0	32.1	0.01	27.9	27.8	5671.799

\*\*\*\*\*

POST TEST OUTLET SPAN CHECK

Span check performed at 13:03:03

ZERO range analyzer reading is : 0.02 %  
ZERO range allowable readings are -0.12 thru 0.14

MID range analyzer reading is : 2.53 %  
MID range allowable readings are 2.34 thru 2.60

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POST TEST INLET SPAN CHECK

Span check performed at 13:04:40

ZERO range analyzer reading is : 0.0 %  
ZERO range allowable readings are -2.3 thru 2.3

MID range analyzer reading is : 39.2 %  
MID range allowable readings are 37.2 thru 41.9

\*\*\*\*\*

## PRELIMINARY TEST RESULTS

The test data file name is D:maraleb.DAT

There were 72 test intervals, 66 of which had flow.

Average barometric pressure was 754.77 mm Hg

Average flow pressure was 1.25 mm Hg

Average ambient temperature was 14.96 celcius

Average exhaust temperature was 18.23 celcius

Average inlet concentration was 19.35 %

Average outlet concentration was 0.03 %

Total volume emitted was 1767.31 cubic meters

Total volume emitted standardized was 1769.49 cubic meters

Total milli-grams emitted was 1006846

Accountable gallons loaded was 265450

Total gallons loaded was 350150

Accountable liters loaded was 1004837

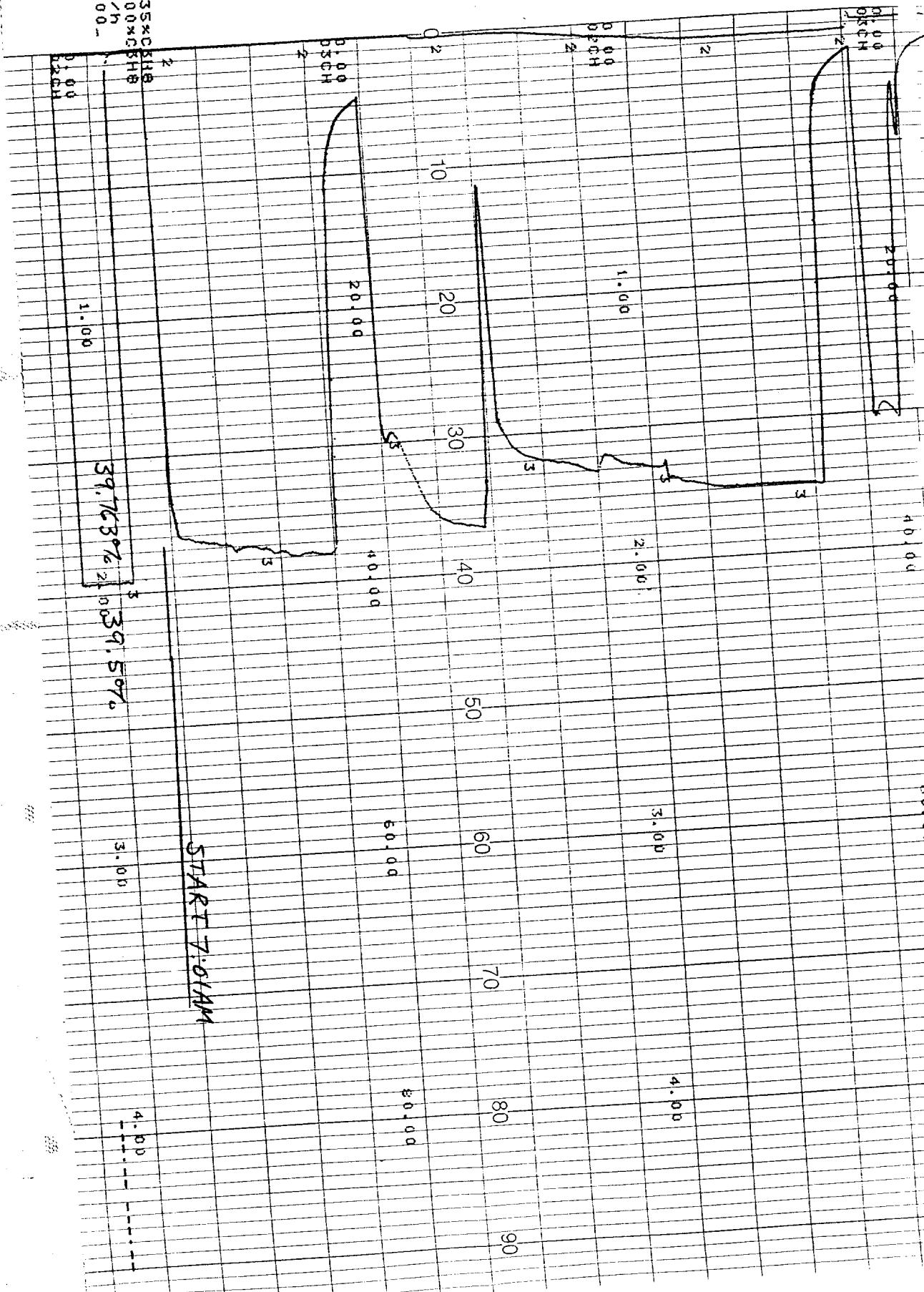
Total liters loaded was 1325461

Accountable milli-grams emitted per liter loaded was 1.00

Total milli-grams emitted per liter loaded was 0.76

Unit efficency for accountable gas loaded was 99.72 %

Unit efficency for total gas loaded was 99.79 %



JOHN F JORDAN SERVICES

TECHNICAL SERVICES GROUP

LOUISVILLE KY 40212-8344

CHANNEL #2 INLET 0-100% PROPANE CHANNEL 3 OUTLET 0-5% PROPANE

MARATHON TRUCK LOADING FACILITY LEBANON OHIO

39.5% 39.2%

2.47% 2.53% STOP TEST @ 2:01 PM

03 35.51x0.000000  
02 30.00x0.000000  
Jun. 04 12.00m/h 13:00-

0 10 20 30 40 50 60 70 80 90

1.00 2.00 3.00 4.00

20.00 40.00 60.00 80.00

3.00

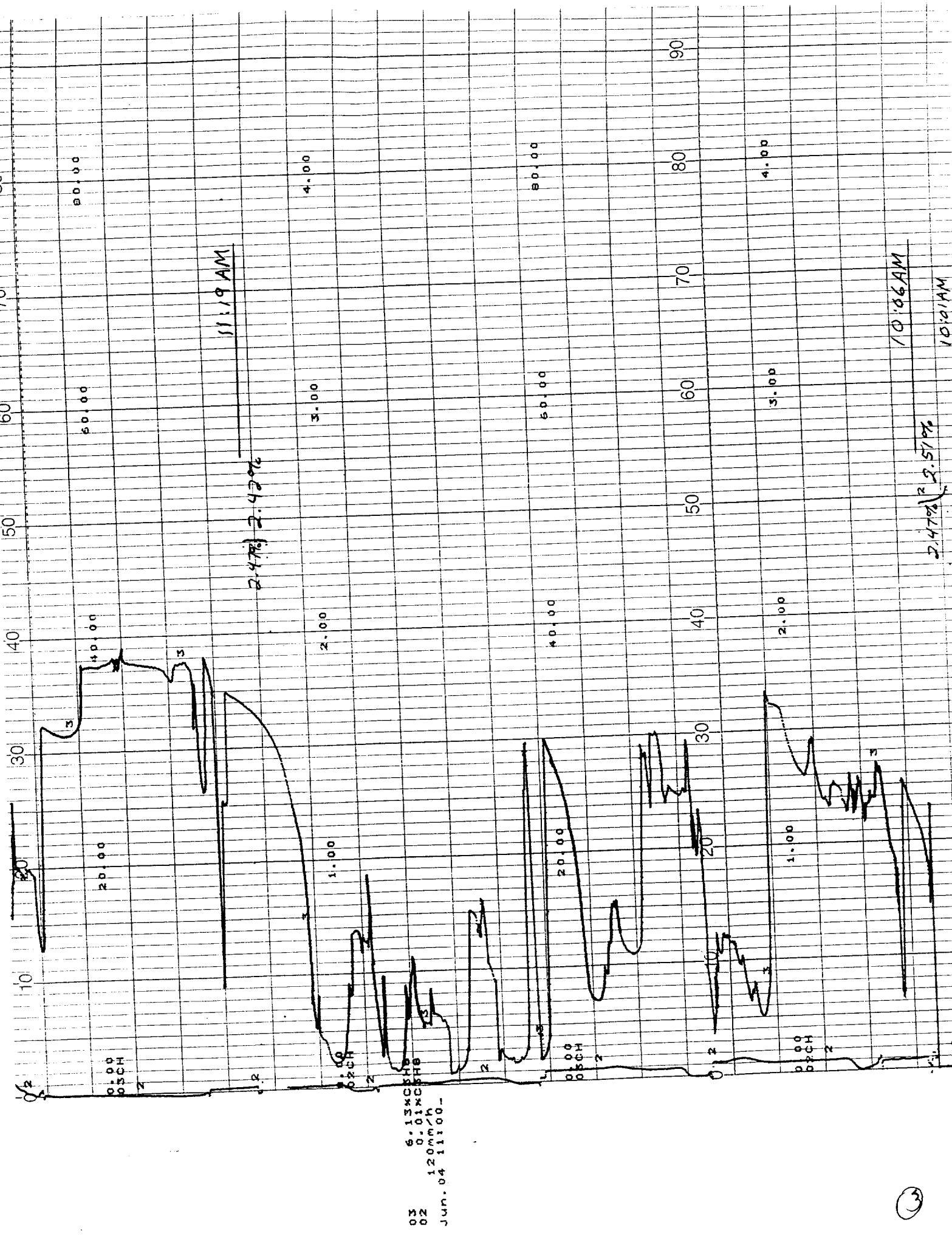
03 0.26x0.000000  
02 -0.01x0.000000  
Jun. 04 12.00m/h 12:00-

39.5% 39.1%

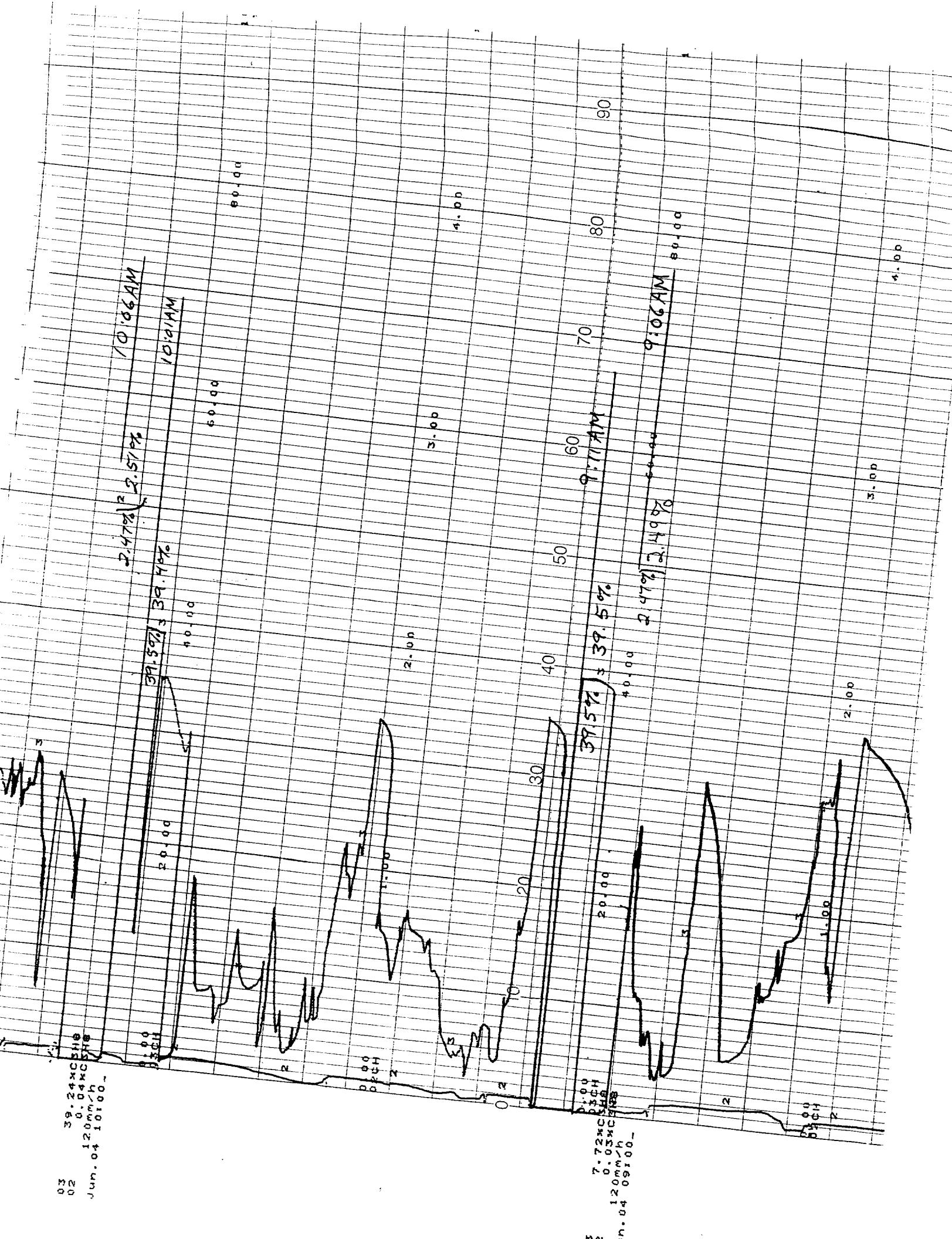
2.47% 2.43%

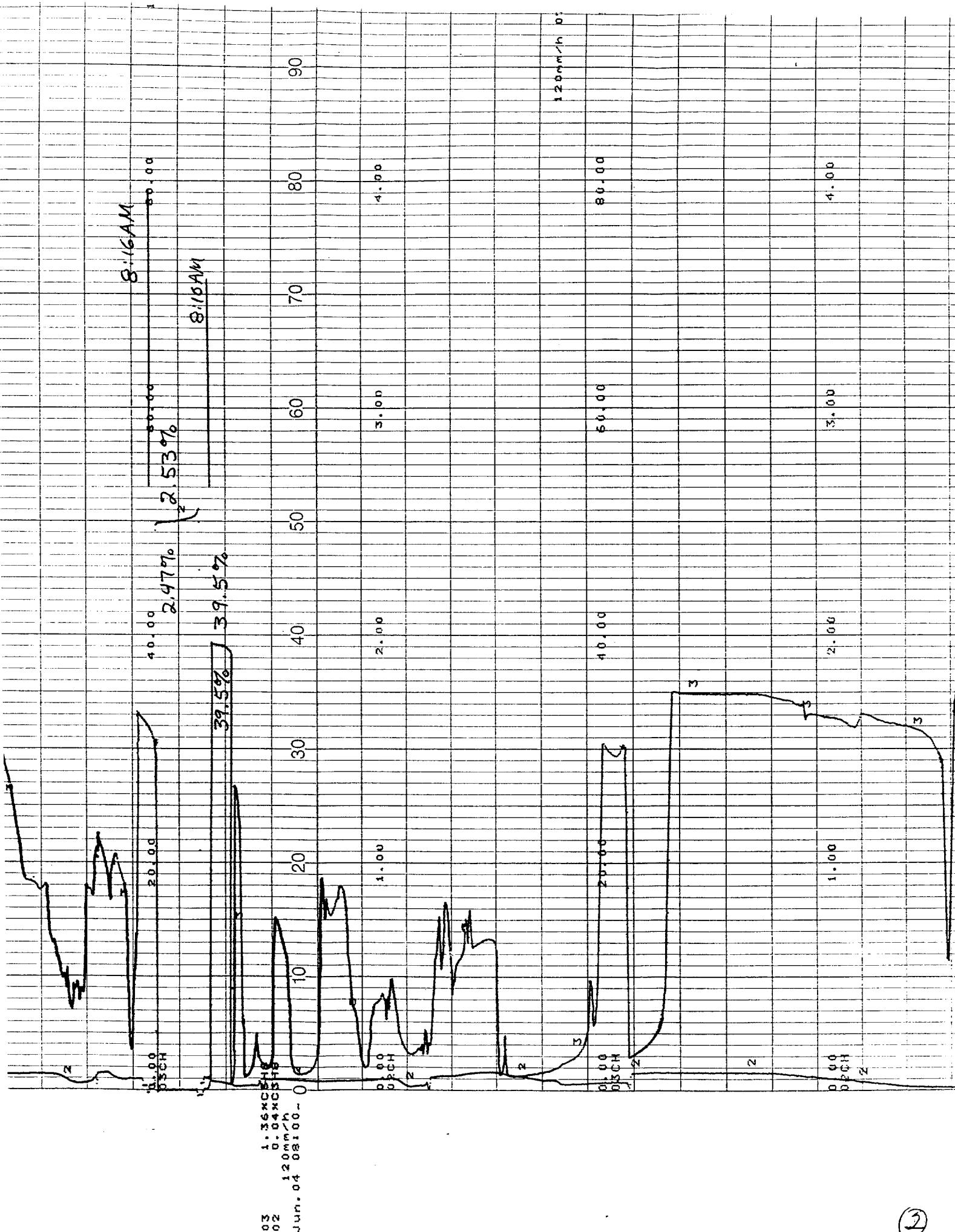
11:59 AM 4.00

12:04 PM



Jun. 04 11100-  
120MM/H  
0.01X0  
0.13X0  
02 03





(3)

